



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

### Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

### About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

**HARVARD  
MEDICAL LIBRARY**



**IN THE  
Francis A. Countway  
Library of Medicine  
BOSTON**





**HARVARD  
MEDICAL LIBRARY**



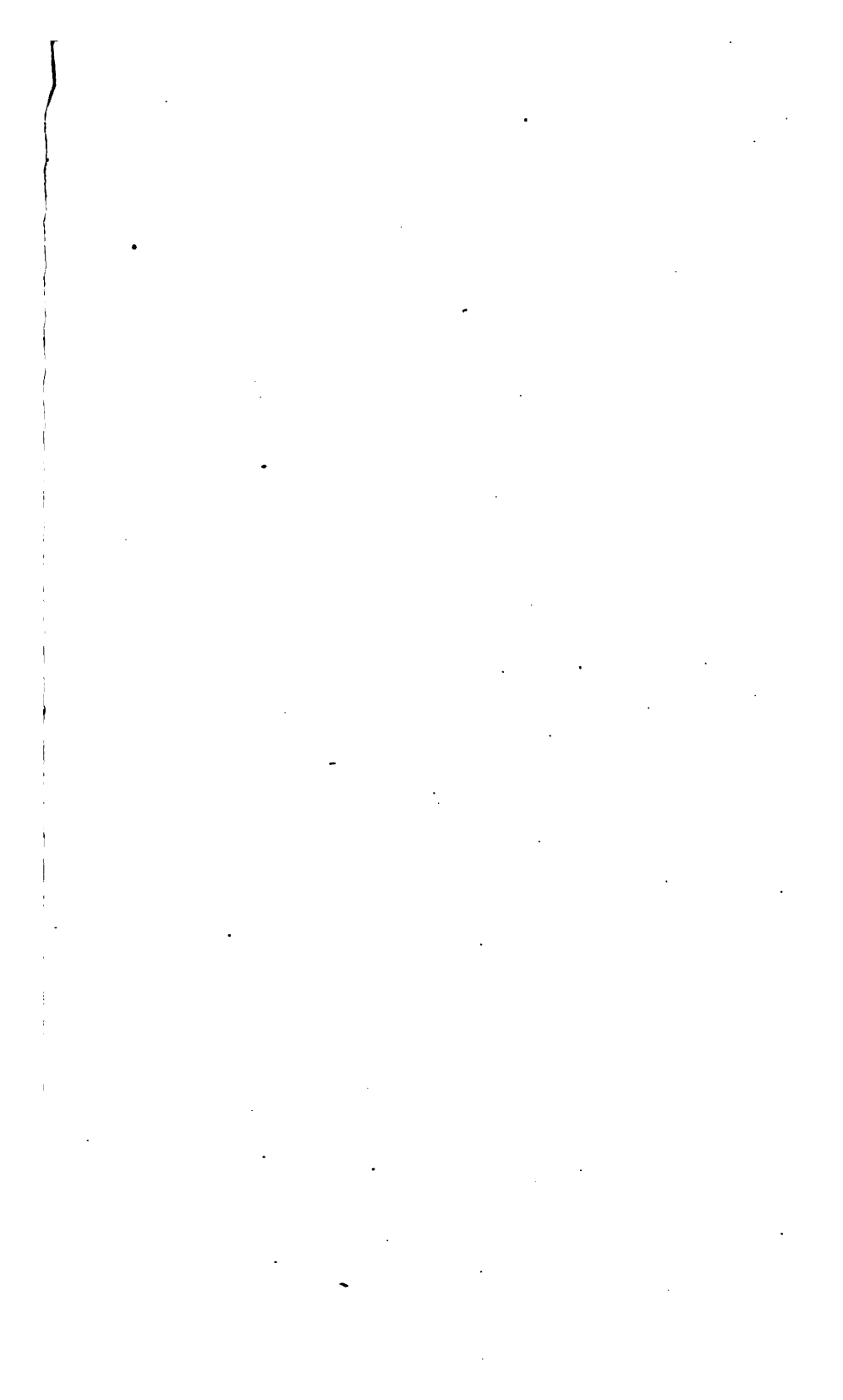
**IN THE  
Francis A. Countway  
Library of Medicine  
BOSTON**











HARVARD UNIVERSITY  
SCHOOL OF MEDICINE AND PUBLIC HEALTH  
LIBRARY

41

---

Entered according to the Act of Congress, in the year 1864, by

BLANCHARD AND LEA,

in the Office of the Clerk of the District Court of the United States in and for the  
Eastern District of the State of Pennsylvania.

---

PHILADELPHIA:  
COLLINS, PRINTER.



## TO READERS AND CORRESPONDENTS.

The press of original matter has compelled us to postpone until our next No. the communications of Drs. Reeve and Turner, which were in type, and also several Bibliographical Notices.

Extra copies of papers published in this Journal can only be furnished under particular circumstances, and then but in a limited number and when the request for them is made at the time the MS. is sent to the Editor. The distribution of extra copies has a tendency to materially restrict the circulation of the Journal, and furnishing them involves much trouble and attention.

The following works have been received:—

A Practical Treatise upon Eczema, including Lichenous, Impetiginous, and Pruriginous Varieties. By T. McCALL ANDERSON, M.D., Fellow of the Faculty of Phys. and Surg., Physician to the Dispensary for Skin Diseases. London: John Churchill & Sons, 1863. (From the Author.)

The Surgical Diseases of Children. Being the Lettsomian Lectures delivered before the Medical Society of London, March, 1863. By THOMAS BRYANT, F.R.C.S., Assist. Surg. Guy's Hospital. London: John Churchill & Sons, 1863. (From the Author.)

On the Character, Actions, and Therapeutic Uses of the Ordeal Bean of Calabar (*Physo stigma Venenosum*, Balfour); a Graduation Thesis for which a gold medal by the Edinburgh University, Aug. 1862. By THOS. R. FRASER, M.D. Edinburgh, 1863. (From the Author.)

Notes of Researches on the Intimate Structure of the Brain. Third Series. By J. LOCKHART CLARKE, F.R.S. From Proceedings of Royal Society, Vol. XII., No. 57. (From the Author.)

Urine, Urinary Deposits, and Calculi; and on the Treatment of Urinary Diseases. With numerous illustrations and tables for the clinical examination of Urine. By LIONEL S. BEALE, M.B., F.R.S., F.R.C.P., &c. &c. &c. Second edition. London: John Churchill & Sons, 1864. (From the Author.)

On Human Entozoa: comprising the description of the different species of worms found in the intestines and other parts of the human body, and the pathology and treatment of the various affections produced by their presence. To which is added a Glossary of the principal terms employed. By WM. ABBOTTS SMITH, M.D., M.R.C.P., Physician to the Metropolitan Free Hospital, &c. &c. London: H. K. Lewis, 1863. (From the Author.)

Enuresis (Incontinence of Urine) in Children and in Adults; its Causes, Nature, and Treatment: comprising especially those forms of the disease which are unassociated with surgical affections of the bladder and adjacent parts. By WM. ABBOTTS SMITH, M.D., M.R.C.P., &c. &c. Second Edition. London: H. K. Lewis, 1862. (From the Author.)

Synopsis of the Course of *Materia Medica* and *Pharmacy*, delivered in the University of Pennsylvania. With Three Lectures on the *Modus Operandi* of Medicines. By JOSEPH CARSON, M.D. Third Edition Revised. Philadelphia: Blanchard & Lea, 1863.

The Medical Formulary; being a collection of Prescriptions derived from the writings and practice of many of the most eminent physicians in America and Europe, &c. &c. By BENJ. ELLIS, M.D., Eleventh Edition carefully revised and much extended. By ROBERT P. THOMAS, M.D., Prof. Mat. Med. in Philad. Col. Pharmacy. Philadelphia: Blanchard & Lea, 1864. (From the Publishers.)

A Report on Hospital Gangrene, Erysipelas, and Pyæmia, as observed in the Departments of the Ohio and the Cumberland, with cases appended. By M. GOLDSMITH, Surgeon U.S.V. Published by permission of the Surgeon-General U.S.A. Louisville, 1863. (From Dr. Caldwell.)

Sickness and Mortality of the Army during the first Year of the War. By J. J. WOODWARD, Ass. Surg. U.S.A. (From the Author.)

A Case of Neuroma of the Optic Nerve, with remarks and illustrations. By JOHN A. LIDELL, M.D., Prof. Anat. in National Med. Col. New York, 1863. (From the Author.)

Outlines of the Chief Camp Diseases of the United States Armies as observed during the present War. A practical contribution to Military Medicine. By JOSEPH JANVIER WOODWARD, M.D., Ass. Surg. U.S.A., &c. &c. Philadelphia: J. B. Lippincott & Co., 1863. (From the Publishers.)

First Outlines of a Dictionary of the Solubilities of Chemical Substances. By Frank H. Storer. One Volume in three parts. Part II. Cambridge: SEVER & FRANCIS, 1863. (From the Author.)

A Manual on Extracting Teeth. Founded on the Anatomy of the parts involved in the operation; the kinds and proper construction of the instruments to be used; the accidents liable to occur from the operation, and the proper remedies to retrieve such accidents. By ABRAHAM ROBERTSON, D.D.S., M.D., &c. Philadelphia: Lindsay & Blakiston, 1863. (From the Publishers.)

Hospital Construction, with notices of Foreign Military Hospitals. By CHAS. A. LEE, M.D. Albany, 1863. (From the Author.)

Disinfection of Vessels. By A. N. Bell, A. M., M.D. New York, 1863. (From the Author.)

A Memorial of Charles Hooker, M.D. The Inaugural Address of L. J. SANFORD, M.D., as Professor of Anatomy and Physiology in Yale College. Delivered September 17, 1863. New Haven, 1863. (From the Author.)

Relations of War to Medical Science. The Address delivered before the West Chester County (N. Y.) Medical Society, June 16, 1863. By J. FOSTER JENKINS, M.D., President of the Society. New York, 1863. (From the Author.)

Medical Logic. An Introductory Lecture to the Medical Department of the University of Michigan. Session 1863-64. By S. G. ARMOR, M.D., Prof. of Inst. of Med. and Mat. Med. Detroit, 1863. (From the Author.)

Introductory Address delivered before the Students of Jefferson Medical College, Philadelphia. By Prof. SAMUEL H. DICKSON, October 12, 1863. Philadelphia, 1863. (From the Author.)

Address before the American Medical Association at its Fourteenth Annual Meeting. By WILSON JEWELL, M.D. Philadelphia, 1863.

Proceedings of the Academy of Natural Sciences of Philadelphia, June, July, August, September, 1863.

Transactions of the State Medical Society of Indiana, at the Thirteenth Annual Session, held in the city of Indianapolis, May 20 and 21, 1863.

Transactions of the Eighteenth Annual Meeting of the Ohio State Medical Society, held at the Ohio White Sulphur Springs, June 16, 17, 18, 1863. Cincinnati, 1863. (From Dr. E. B. Stevens.)

The following Journals have been received in exchange:—

*Annales Médico-Psychologiques.* Redigé par MM. les Docteurs BAILLARGER et CERISE. Sept. 1863.

*Revue de Thérapentique Médico-Chirurgicale.* Redigé par A. MARTIN-LAUZER, M.D.P. Nos. 18, 19, 20, 21, 22, 23. 1863.

*Guy's Hospital Reports.* Edited by SAMUEL WILKS, M.D., and ALFRED POLAND. Third Series. Vol. IX. October, 1863.

*The British and Foreign Medico-Chirurgical Review.* October, 1863.

*The Medical Critic and Psychological Journal.* Edited by FORBES WINSLOW, M.D. October, 1863.

*British Medical Journal.* September, October, 1863.

*Edinburgh Medical Journal.* September, October, November, 1863.

*The Glasgow Medical Journal.* October, 1863.

*Dublin Quarterly Journal of Medical Science.* November, 1863.

*Dublin Medical Press.* October, November, 1863.

*The Royal London Ophthalmic Hospital Reports and Journal of Ophthalmic Medicine and Surgery.* Edited by J. C. WORDSWORTH, J. W. HULKE, and J. HUTCHINSON. Vol. IV., Part I. London, 1863.

*Madras Quarterly Journal of Medical Science,* July, 1863.

*Canada Lancet.* Edited by Wm. E. BOWMAN, M.D. Vol. I. Nos. 6, 8, 9, 10, 1863.

*The Boston Medical and Surgical Journal.* Edited by SAMUEL L. ABBOT, M.D., and JAS. C. WHITE, M.D. October, November, December, 1863.

*The American Journal of Insanity.* Edited by the Medical Officers of the New York State Lunatic Asylum. October, 1863.

*The Cincinnati Lancet and Observer.* Edited by E. B. STEVENS, M.D., and J. A. MURPHY, M.D. October, November, December, 1863.

*Ohio Medical and Surgical Journal.* Edited by the Professors of Starling Medical College. September, 1863.

*The Buffalo Medical and Surgical Journal.* Edited by J. F. MINER, M.D. November, December, 1863.

The Chicago Medical Examiner. Edited by N. S. DAVIS, M. D. October, November, 1863.

The Pacific Medical and Surgical Journal. Edited by V. J. FOURGEAUD, M. D. August, September, October, 1863.

San Francisco Medical Press. Edited by L. C. LANE, A. M., M. D. October, 1863.

The Sanitary Commission Bulletin. Vol. I. Nos. 1, 2, 3. 1863.

The Sanitary Reporter. Vol. I. No. 9.

The American Journal of Science and Arts. Edited by Profs. B. SILLIMAN, B. SILLIMAN, Jr., and J. D. DANA. November, 1863.


The American Journal of Pharmacy. Published by authority of the Philadelphia College of Pharmacy. Edited by WM. PROCTER, Jr., Prof. Pharmacy. November, 1863.

American Druggists' Circular. November, December, 1863.

Communications intended for publication, and Books for Review, should be sent, *free of expense*, directed to ISAAC HAYS, M. D., Editor of the American Journal of the Medical Sciences, care of Messrs. Blanchard & Lea, Philadelphia. Parcels directed as above, and (carriage paid) under cover, to Messrs. Trübner & Co., Booksellers, No. 60 Paternoster Row, London, E. C.; or M. Hector Bossange, Lib. quai Voltaire, No. 11, Paris, will reach us safely and without delay. We particularly request the attention of our foreign correspondents to the above, as we are often subjected to unnecessary expense for postage and carriage.

Private communications to the Editor may be addressed to his residence, 1525 Locust Street.

ALL REMITTANCES OF MONEY, and letters on the *business* of the Journal, should be addressed *exclusively* to the publishers, Messrs. Blanchard & Lea.

 The advertisement-sheet belongs to the business department of the Journal and all communications for it should be made to the publishers.

To secure insertion, all advertisements should be received by the 20th of the previous month.

# CONTENTS

OF THE

## AMERICAN JOURNAL

OF THE

### MEDICAL SCIENCES.

NO. XCIII. NEW SERIES.

JANUARY, 1864.

#### ORIGINAL COMMUNICATIONS.

##### MEMOIRS AND CASES.

ART.	PAGE
I. Hypertrophic Elongation of the Cervix Uteri of 26 years' standing, with Projection of the Enlarged Os beyond External Organs; Ulceration; Hemorrhage; Operation, followed by complete cure. By J. Mason Warren, M. D., Surgeon at Mass. Gen. Hospital. . . . .	17
II. Notice of the Spotted Fever as it occurred at Newport, Rhode Island, in the months of January, February, March, and April, 1863, with a History of the Disease, its Symptoms, Diagnosis, and Treatment. By Philip S. Wales, M. D., Surgeon U. S. N. . . . .	22
III. On the Presence of Air in the Veins as a Cause of Death. By James Sumner Green, M. D., of Dorchester, Mass. . . . .	38
IV. Remarks on the Epidemic Influenza of 1861 and of 1863, with Notices of some Malignant Forms of this Disease. By James J. Levick, M. D., one of the Physicians of the Pennsylvania Hospital. . . . .	65
V. The Surgical Treatment of Amenorrhœa. By Horatio R. Storer, M. D., of Boston, Surgeon to the Pleasant Street Hospital for Women. (Read by invitation before the Norfolk District Medical Society of Massachusetts, Nov. 11, 1863.) . . . . .	81
VI. On the Constitution and Source of the Bile. By Thomas Antisell, Surgeon U. S. V., Prof. of Physiology and Mil. Surgery in the Medical Department of Georgetown College, D. C. . . . .	91
VII. On the Therapeutical Applications of the Solution of the Permanganate of Potash, and of Ozone. By Samuel Jackson, M. D., Emeritus Prof. of the Institutes of Medicine in the University of Pennsylvania. . . . .	98
VIII. Case of Amputation at the Hip-Joint; illustrated by an Engraving. By S. D. Gross, M. D., Professor of Surgery in the Jefferson Medical College, and one of the Surgeons of the Philadelphia Hospital. . . . .	105
IX. On Gunshot Wounds of Arteries. Traumatic Hemorrhage and Traumatic Aneurism. By John A. Lidell, M. D., Surgeon U. S. Vols. . . . .	108
X. Case of Aneurism of the Axillary Artery. By Isaac Norris, Jr., M. D., Act. Assistant Surgeon U. S. A. . . . .	128
XI. On a Simple Dressing for Recent Burns. By John H. Packard, M. D., of Philadelphia. . . . .	130
XII. Bibron's Bromine Mixture an Antidote to the Poison of the Boa Crotaloides. By Charles H. Hughes, M. D., Surg. 1st Inf. M. S. M. Vols. . . . .	132

ART.	PAGE
XIII. Cases. By Isaac G. Porter, M. D., Acting Assistant Surgeon U. S. Army at Fort Trumbull, Ct. . . . .	135
XIV. Surgical Cases. By John Ashhurst, Jr., M.D., one of the Surgeons of the Episcopal Hospital. . . . .	142
XV. On Diphtheria and its Treatment. By C. D. Meigs, M. D., Emeritus Professor of Midwifery in Jefferson Medical College, Philadelphia . . . . .	148

## REVIEWS.

XVI. Mental Hygiene. By I. Ray, M. D. Boston: Ticknor & Fields, 1863. 12mo. pp. 338. . . . .	151
XVII. 1. De l'Ataxie Locomotrice Progressive. Par le Dr. Duchenne (de Boulogne). (Arch. Gén. de Médecine, Dec. 1858; Jan., Fev., and Avril, 1859.) On Progressive Locomotor Ataxia. By Dr. Duchenne, of Boulogne. 2. Études Cliniques et Histologiques sur l'Ataxie Locomotrice Progressive. Par Hip. Bourdon, &c. (Ibid., Nov. 1861; Avril, 1862.) Clinical and Historical Researches on Progressive Locomotor Ataxia. By Dr. Bourdon. 3. Erfolge der Behandlung der progressiven spinal Paralyse durch Silbersalpeter. Von C. A. Wunderlich. (Archiv der Heilkunde, Apr. 1861.) Results of the Treatment of Progressive Spinal Paralysis by Nitrate of Silver. By Prof. Wunderlich. 4. Weitere Erfahrungen, &c. (Ib., Dec. 1862.) Further Results of Experience in the Treatment, &c. By the same. 5. Ueber degenerative Atrophie der spinalen Hinterstränge. Von Prof. Dr. N. Friedreich, in Heidelberg. (Virchow's Archiv, xxvi., 391, 433, and xxvii., 1.) On Degenerative Atrophy of the Posterior Columns of the Spinal Cord. By Prof. Friedreich. 6. De l'Ataxie Locomotrice. Par George Dujardin-Beaumetz. (Paris, 1862, 8vo. pp. 73.) On Locomotor Ataxia. By Dr. Dujardin-Beaumetz. . . . .	164
XVIII. A Guide to the Qualitative and Quantitative Analysis of the Urine, designed especially for the use of Medical Men. By Dr. C. Neubauer and Dr. J. Vogel. Fourth Edition, considerably altered and enlarged (with 4 plates and 28 wood-cuts). Translated (from the German) by William O. Markham, F.R.P.L. The New Sydenham Society, London, 1863. 178 The Semeiology of the Human Urine, especially designed for the purposes of the Physician, containing a description of the signs indicated by the altered conditions of the Urine, and a guide to the investigation of Urinary Calculi and other Urinary Concretions. By Dr. Julius Vogel. New Sydenham Society, London, 1863.	

## BIBLIOGRAPHICAL NOTICES.

XIX. Transactions of State Medical Societies. 1. Transactions of the Seventeenth Annual Meeting of the Ohio State Medical Society, held at Ohio White Sulphur Springs, June 17th and 18th, 1862. 8vo. pp. 124. Cincinnati, 1862. 2. Transactions of the Medical Society of the State of New York for the year 1863. 8vo. pp. 442. Albany, 1863. 3. Transactions of the Medical Society of the State of Pennsylvania at its Fourteenth Annual Session, held in Philadelphia, June, 1863. 8vo. pp. 356. Philadelphia, 1863. 4. Transactions of the State Medical Society of Indiana, at the Thirteenth Annual Session. Held in the city of Indianapolis, May 20 and 21, 1863. 8vo. pp. 50. Indianapolis, 1863. . . . .	195
--	-----

## ART.

## PAGE

- XX. Reports of American Hospitals for the Insane.**
1. Of the Pennsylvania Hospital for the Insane, for the year 1862.
  2. Of the State Hospital of Pennsylvania, for the year 1862.
  3. Of the Western Pennsylvania Hospital, for the year 1862.
  4. Of the Mount Hope Institution, for the year 1862.
  5. Of the Kentucky Eastern Asylum, for the year 1862.
  6. Of the Michigan Asylum, for the two years 1861, 1862.
  7. Of the King's County (N. Y.) Asylum, for the fiscal year 1862-63.
  8. Of the New York City Asylum, for the year 1861. . . . . 210
- XXI. On the Treatment of Diphtheria, with Illustrative Cases. By E. N. Chapman, M. D., Professor of Therapeutics and Materia Medica, etc. etc., in the Long Island College Hospital. From the Boston Med. and Surg. Journ., for Feb. 1863. 8vo. pp. 32. . . . . 218**
- XXII. First Outlines of a Dictionary of Solubilities. Part II. By Frank H. Storer, Cambridge. Sever & Francis. 8vo. pp. 234. . . . . 220**
- XXIII. A Report on Hospital Gangrene, Erysipelas, and Pyæmia, as observed in the Departments of the Ohio and the Cumberland, with cases appended. By M. Goldsmith, Surgeon U. S. V. Published by permission of the Surgeon-General U. S. A. 8vo. pp. 94. Louisville: Bradley & Gilbert, 1863. . . . . 221**
- XXIV. Synopsis of Lectures on Materia Medica and Pharmacy, delivered in the University of Pennsylvania. With Three Lectures on the Modus Operandi of Medicines. By Joseph Carson, M.D. Third edition, revised. 8vo. pp. 244. Philadelphia: Blanchard & Lea, 1863. . . . . 223**
- XXV. Enlarged and Revised to 1864. The Medical Formulary: being a Collection of Prescriptions derived from the writings and practice of many of the most eminent physicians in America and Europe. Together with the usual Dietetic Preparations and Antidotes for Poisons. To which is added an Appendix on the Endermic Use of Medicines, and on the Use of Ether and Chloroform. The whole accompanied with a few brief Pharmaceutical and Medical Observations. By Benjamin Ellis, M. D., late Prof. of Mat. Med. and Pharm. in Philad. Coll. Pharm. Eleventh edition, carefully revised and much extended, by Robert P. Thomas, M. D., Prof. Mat. Med. in Philada. Coll. Pharm. 8vo. pp. 341. Philadelphia: Blanchard & Lea, 1864. . . . . 223**
- XXVI. Practical Lithotomy and Lithotrity; or, an Inquiry into the best modes of removing Stone from the Bladder. By Henry Thompson, F.R.C.S., of University College Hospital, &c. 8vo. pp. 274. London: John Churchill & Sons, 1863 . . . . . 224**
- XXVII. On the Diseases, Injuries, and Malformations of the Rectum and Anus; with remarks on Habitual Constipation. By T. J. Ashton, formerly Surgeon to the Blenheim Dispensary, &c. Fourth edition, 8vo. pp. 403. London: John Churchill & Sons, 1863. . . . . 225**
- XXVIII. A Practical Hand-book of Medical Chemistry. By John E. Bowman, F. C. S. Edited by Charles L. Bloxam. Third American, from the Fourth London edition. 12mo. pp. 351. Philadelphia: Blanchard & Lea, 1863. . . . . 226**

# QUARTERLY SUMMARY OF THE IMPROVEMENTS AND DISCOVERIES IN THE MEDICAL SCIENCES.

## FOREIGN INTELLIGENCE.

### ANATOMY AND PHYSIOLOGY.

	PAGE		PAGE
1. On the Contractility of Healthy and Paralyzed Muscles, as tested by Electricity. By H. Lobb. . . . .	227	Persistence of the Biliary Secretion. By E. A. Chassagne. . . . .	229
2. On the Relation of the Circulation in the Liver to the Formation of Bile. By Dr. Schiff. . . . .	228	4. Remarkable Anomaly of the Cavities of the Heart, in an Adult, without Cyanosis. By M. Bouillaud. . . . .	229
3. Ligature of the Vena Porta and			

### MATERIA MEDICA AND PHARMACY.

5. Therapeutic Properties of Carbolic Acid. By Mr. Grace Calvert. . . . .	229	8. Local Employment of Bismuth and Glycerine. . . . .	231
6. A New Hæmostatic. By Dr. Janssens. . . . .	231	9. Anomalous Results of the Administration of Chloroform by Inhalation. By H. B. Montgomery. . . . .	231
7. The New Diuretic Wine of the Hôtel Dieu. By M. Trousseau. . . . .	231	10. Sulphate of Copper in Pencils. By Don M. Llovet. . . . .	234

### MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

11. A New Method of treating Disease by controlling the Circulation of the Blood in Different Parts of the Body. By Dr. John Chapman. . . . .	235	16. Influence of Exhaustion of the Spinal Cord in inducing Paraplegia. By Dr. Russell. . . . .	241
12. Treatment of Delirium Tremens. By Surg. Wm. Hanbury. . . . .	237	17. Senile Dementia. By M. Marcé. . . . .	244
13. Treatment of Diarrhoea and Dysentery. By Prof. Skoda. . . . .	238	18. Urine of Intermittent Fever. By Edw. Nicholson. . . . .	245
14. Influence of the Horizontal Position on Bilious Vomiting. By M. Beau. . . . .	239	19. Pulmonary Congestion in Children, simulating the Early Stage of Phthisis. By M. Bouchut. . . . .	245
15. Diphtheria. By Dr. J. West Walker. . . . .	240	20. Red Line on the Gums in Phthisis. By Dr. J. Picard. . . . .	246
		21. Direct Communication between the Bladder and Rectum. By Dr. Wm. Price. . . . .	247

### SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

22. Treatment of Carbuncle. By Mr. Augustin Pritchard. . . . .	247	25. Mucous Cyst on the Laryngeal Aspect of the Epiglottis, seen by the Laryngoscope and successfully treated by Incision. By Mr. A. E. Durham. . . . .	254
23. Operative Surgery in Children. By M. Guersant. . . . .	251	26. Amygdalotomy. By M. De-roubaix. . . . .	255
24. Tracheotomy and its Employment in Diphtheria. By Mr. Henry Smith. . . . .	253		



	PAGE		PAGE
27. Tetanus caused by a Wound of the Hand, treated by Section of the Median Nerve. By Dr. Fayer.	256	32. Pneumatocele of the Skull following Fracture of the Petrous Bone; Recovery. By Dr. Che- vance.	258
28. Operations for Strangulated Hernia on very aged Patients. By Mr. Henry Smith.	257	33. Perinephritic Abscess. By M. Jobert	259
29. Sutures in the Operation for Hare-lip. By M. Giralde's	258	34. Cancerous Infiltration of the Entire Penis. By Mr. Holmes Coote.	260
30. Dressing of Wounds. By M. Maissonneuve.	258	35. Inequality in the Length of Limbs. By Dr. Duparcque	260
31. Radical Cure of Hydrocele. By M. Maissonneuve.	258		

OPHTHALMOLOGY.

36. Recent Modifications in the Methods of Extracting Cataract. By Drs. Schuft, Mooren, and Jacobson.	261	duced by Tobacco. By J. C. Wordsworth.	266
37. Operation of Abcision in Staphyloma. By Mr. Critchett	263	40. Use of Tannin in Inflammatory Affections of the Conjunctiva. By Mr. G. R. Sheraton.	267
38. On some of the Diseases Constituting the Condition commonly called Amaurosis. By Mr. Ernest Hart.	265	41. Ophthalmia produced by "Sulphuring" Vines. By M. Bouisson.	268
39. Three Cases of Amaurosis produced by Tobacco. By J. C. Wordsworth.		42. Reflecting Ophthalmoscope. By J. Z. Laurence.	269
40. Use of Tannin in Inflammatory Affections of the Conjunctiva. By Mr. G. R. Sheraton.			
41. Ophthalmia produced by "Sulphuring" Vines. By M. Bouisson.			
42. Reflecting Ophthalmoscope. By J. Z. Laurence.			

MIDWIFERY.

43. Combined External and Internal Version. By Dr. Braxton Hicks.	269	46. Diphtheritic Affection of the Mucous Membrane of the Uterus after Delivery; Different Local Complications in Puerperal Fever. By Dr. Alex. R. Simpson.	274
44. Rectification of Face Presentation under Chloroform. By Mr. W. S. Carmichael.	272		
45. New Cause of Unavoidable Hemorrhage. By Dr. Bryce.	273		

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

47. Nitrobenzole and Aniline as Poisons. By Dr. Letheby	274	50. Effects of Emerald Green on Paper-Stainers. By Dr. Letheby.	278
48. Bichromate of Potassa as a Poison. By MM. A. Chevalier and Dr. Bécourt.	276	51. Toxicological Experiments with Turpentine. By Dr. L. W. Liersch.	279
49. Poisoning by Cyanide of Potassium. Dangers to Photographers. By Dr. Davanne.	278	52. Poisonous Properties of Thallium. By M. Lamey.	280

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Case of a Gunshot Wound of the Penis and Scrotum, with Remarkable Course of the Ball. By Isaac Norris, Jr., M. D.	281
---	-----

## DOMESTIC SUMMARY.

	PAGE		PAGE
Astigmatism. . . . .	281	The Yellow Colour of the Skin in	
Spotted Fever. By Dr. E. W.		Yellow Fever Due to the Pre-	
Jenks. . . . .	282	sence of Hæmatoidine. By Dr.	
Enormous Hypertrophy of the Os		S. Fleet Speir. . . . .	286
and Cervix Uteri, forming an		Properties and Composition of the	
External Tumour; Entirely Re-		Ridgewood Disinfecting Pow-	
lieved by Excision. By Dr. H.		der. By Dr. Griscom. . . . .	287
A. Martin. . . . .	284		

THE  
AMERICAN JOURNAL  
OF THE MEDICAL SCIENCES  
FOR JANUARY 1864.

---

**ART. I.—*Hypertrophic Elongation of the Cervix Uteri of 26 years' standing, with Projection of the Enlarged Os beyond External Organs: Ulceration; Hemorrhage; Operation, followed by complete Cure.* By J. MASON WARREN, M.D., Surgeon at Mass. Gen. Hospital.**

A VERY elaborate work, with plates, has lately been published in Paris, by M. Huguier, on a disease described under the above title, showing its distinction from simple engorgement and prolapsus of the uterus, with which it has heretofore been confounded. A most remarkable case of this disease has been published in the *Boston Med. and Surg. Journal* of Dec. 4, 1862, by Henry A. Martin, M.D., Surgeon U. S. Volunteers.<sup>1</sup> Other operations for this disease have been performed, in this country, by Dr. Gardner and Dr. Sims, but in none of their cases did the extent of the disease at all compare with that recorded by Dr. Martin. The following case came under my notice about a week after the record of the case of Dr. Martin had been made public. It fully sustains the anatomical description of the disease as given by Huguier in his very interesting and important work. It also shows how unsafe any surgical procedure would be, based on the idea of a simple enlargement of the os and cervix uteri, without taking into view the very remarkable displacements of other organs which occur in the course of the disease when it has proceeded so far as to be projected to any extent beyond the labia. I now proceed to the relation of the case.

Mrs. S., 56 years old, and of rather a delicate constitution, was married about 27 years ago; shortly after her marriage she took a long voyage, and suffered severely from sea-sickness, followed by a miscarriage which

<sup>1</sup> See American Intelligence of this No.

was attended by some hemorrhage and followed by extreme prostration. About a year after these events she was confined with her first child after a tedious labour; this was followed by some prolapsus of the womb. During a subsequent pregnancy the prolapsus was relieved, but after the birth of the child it was reproduced in a greater degree than before, and from that time to the present, she may be said to have been continually suffering from her present affection. When I first saw her the os uteri was enlarged and projected between the external organs, irritating all the neighbouring parts, and giving rise to constant embarrassment in locomotion. The brain also, to a considerable extent, was sympathetically affected, and for a number of years she had been scarcely ever free from a sense of weight and pain in the head. Under the skilful care of Dr. Sims, of New York, after all other mechanical treatment had failed, she had a year of comparative comfort from the use of a gilt-winged pessary, which supported the uterus and prevented the external projection of the tumour. This, however, ultimately failed of its effect. For some months before I first attended her, she had been confined to her room, both from the irritation of the disease, causing great difficulty of progression, and from great debility, caused by repeated and severe hemorrhages from an ulcer of about the size of a quarter of a dollar, situated near the end of the tumour, and similar to the ulcerations noticed in such cases by M. Huguier. The tumour seemed to be of an erectile character, having periods of increase and diminution of size, the former state being accompanied by an effusion of blood from its face.

Being unwilling to operate on a case of this description out of town, and without having first fully investigated it, I advised her to come to Boston for treatment in a private room at the Mass. Gen. Hospital. The following was her condition at this time. She was quite pale and thin, and so feeble as scarcely to be able to move about the room. The tumour presented the following appearance. It was from three to four inches long, and about four inches in circumference at its extremity, and at its base covered by mucous membrane, which from long exposure had, to a certain extent, assumed the character of skin. On the under and back part of the tumour, near its end, was the opening of the os, into which the finger could be introduced to the extent of from two to three inches. A probe passed about two inches farther. At the base of the external tumour was the meatus urinarius. A catheter introduced into the bladder took a downward direction, and its point could be felt half way down the tumour. Of course there was no cul-de-sac of the vagina in front, but behind the tumour the finger could be introduced to a depth of from two to three inches. On exploring the rectum by the touch, the finger could be hooked downwards into the peritoneal cul-de-sac, which was dragged down by the tumour to a distance of about two inches external to the cavity of the pelvis. The uterus could be felt, as a body, of about the thickness of the thumb, and an inch and a half long, in the natural position of that organ. It will be seen, from the above description, that by any operation for removing all the tumour which projected between the labia, about a third or a half of the bladder, and a considerable portion of the peritoneal cul-de-sac would be included in the incisions. The operation was performed as follows on the 18th of November, 1862, the patient being first prepared for it by two or three days' rest. Her physicians, Drs. Cox and Mack, of Salem, and Dr. Cabot, of Boston, giving efficient aid. The patient being etherized, the legs bent as in the operation for lithotomy, the extremity of the tumour was firmly seized by strong hooked forceps, and drawn down-

wards and forwards. An incision was made in the back part of the tumour about two inches from its extremity, and just in front of the peritoneal cul-de-sac, which was marked by the finger hooked down into it from the rectum. This investment being dissected backwards, the enlarged cervix was cut into about an inch higher up, until its cavity was opened. Large vessels, which now spouted in every direction, were tied. The dissection was now continued in front. The tumour being carried backwards and a catheter introduced into the bladder, an incision was made directly in front of it and the bladder dissected off from the body of the tumour as far as the level of the incision on the posterior aspect of the cervix. The section of the tumour was now completed, the base of it being firmly held by the hooked forceps until all the bleeding vessels were secured by ligatures. The form of the incision is well shown in Fig. 1 by the curved dotted lines *s. s.* Great care was taken to make the dissection slowly and to secure every vessel as soon as cut, and by this means, although many vessels were divided, the loss of blood was very moderate. On relaxing the hold with the forceps, the portion of the uterus which remained, together with the adjacent organs, resumed their natural position in the pelvis. At the end of the operation the pulse, probably from the stimulus of the ether, was much stronger than at the commencement. There was some nausea produced by the ether, but no vomiting. She took brandy in the course of the night, and paregoric for a pain in the abdomen. All went on well for two or three days; on the 23d, having some pain in the abdomen, she was relieved by a hot fomentation. On the 24th was comfortable—had an opiate at night. On the 25th, having gone on perfectly well for a week, she was seized with a very severe chill, which lasted three-quarters of an hour, and was followed by great reaction, hot skin, intense headache, great thirst, &c. I could not discover the slightest tenderness of the abdomen or any other evidence of local trouble, and I was told that she was subject to similar attacks. I had thus far been unwilling to disturb the bowels with medicine. An enema was ordered which had no effect, and was followed by a dose of tincture of rhubarb. On the following day, the 26th, she was wholly free from fever, and the medicine having not yet operated, a dose of infusion of rhubarb was given with the effect of producing two dejections. After this she began to take solid food. On the 1st of December she had another chill, which was relieved as before. An examination at this time, with the speculum, showed the surface, from which the tumour had been removed, contracted to the size of a quarter of a dollar; two or three ligatures which still adhered were taken away. About four weeks after the operation the patient was able to walk about, and was completely relieved of all irritation about the pelvic organs, which were now retained in their natural positions. The pain and feeling of weight in the head, which had oppressed her so long, had passed off as if a cloud had been swept away. She returned home about the middle of December, and I had the satisfaction of seeing her entirely cured about two months later. During the latter part of her stay at the hospital, she was kept on as full diet as she could bear, and porter and spirits were given freely, with the effect of relieving the very anæmic condition under which she laboured when she entered the house.

This case is interesting from the perfect cure of a complicated and rare disease of many years' duration, and from the operation being the only one, so far as I know, that has been done in Boston, and with the exception of

Dr. Martin's case, which has been already referred to, the only one done in this vicinity.

I have heard from this lady within a few days (Oct. 10, 1863), nearly eleven months after the operation, in a condition of almost perfect health.

Fig. 1.



- |  |   |
|--|---|
| <p>A. Mons veneris.<br/>B. Right portion of symphysis pubis severed through obturator foramen.<br/>C. Upper portion of bladder lying behind the pubes.<br/>D. Anterior cul-de-sac of the peritoneum.<br/>E. Body of uterus.<br/>F. Posterior cul-de-sac of the peritoneum.<br/>G. Peritoneal coat of rectum forming posterior wall of the posterior cul-de-sac.<br/>H. Rectum.<br/>I and J. Labia majora and minora.<br/>K. Right genito-crural fold.<br/>L. Meatus urinarius.</p> | <p>M, M. Anterior and posterior walls of vagina.<br/>N, N, N. Opening made through outer wall of tumour to show the relations of the parts within.<br/>O. Os uteri.<br/>P. Base of the bladder forming part of the tumour.<br/>Q, Q. Elongated and hypertrophied cervix uteri.<br/>Q', Q'. Outline of lower part of bladder.<br/>R. Body of uterus also elongated.<br/>S, S. Dotted line showing the course of the incisions.<br/>T. Perineum.<br/>U. Anus.</p> |
|--|---|

The accompanying wood-cuts (Figs. 1 and 2) are copied from the work of M. Huguier, and are as good a representation of the present case as if taken from the actual subject—with this exception, that in Fig. 2, which represents the front view of the tumour, the anterior lip of the os uteri projected considerably beyond the lower so as to hide the orifice. The ulceration described was on the lower and back part of the tumour near the end.

Fig. 2.



- |   |   |
|---|---|
| <p>A. Projection made by the bladder through the anterior wall of vagina.</p> <p>B. Os uteri.</p> | <p>C. Mucous discharge from os.</p> <p>D. Posterior and superior wall of vagina brought down by the tumour.</p> |
|---|---|

In connection with this case, the following one of hypertrophic elongation of the cervix, and enlargement of the os uteri, together with fibrous tumours of the body of the organ, is not without interest :—

A widow lady, 48 years old, and the mother of one child, came under my care at the Massachusetts General Hospital on the 16th of May, 1863. Fifteen years ago she discovered a small tumour in the left side of the abdomen, which gradually increased in size, and was attended with a sensation of weight and bearing down, but without acute pain. Fourteen years ago she had a paralytic attack of the left side of the body, from which she partially recovered. Profuse flooding had occurred several times during the four or five months immediately preceding her admission to the hospital, and had materially diminished her strength. She experienced much difficulty in passing urine, a fact easily explained by the displacement of the uterus and surrounding organs.

She was a good deal emaciated, but had a fair pulse and was able to take some exercise out of doors every day. The abdomen was enlarged, and of a conical form, from the presence of a tumour of about twice the size of a cocoanut. An elongated tumour, nearly three inches long, and of about the same circumference, projected between the labia. This tumour, which might at first sight have been mistaken for a simple prolapsus of the vagina, consisted in reality of the elongated and hypertrophied cervix and os. The meatus urinarius opened upon the upper and front part of the tumour. The boundary between the tumour and the coats of the vagina was marked

by wrinkles of the mucous membrane. A careful exploration of the abdomen disclosed two tumours, one above the other, which together filled the cavity of the pelvis, and encroached on the rectum. Simpson's sound could be passed but a short distance into the os; the finger was arrested at the os internum, but the obstacle was easily overcome by the use of a sponge tent, and the finger then passed readily into the small cavity of the organ.

A consultation with several gentlemen distinguished in the obstetric art resulted in a decision unfavourable to any operative interference.

The patient remained under observation in the hospital about a fortnight, when she was seized with pains in the abdomen, and died in the course of the next week, with symptoms of peritonitis.

On post-mortem examination, a large intra-mural tumour was discovered, obliterating nearly the whole cavity of the organ. This was the tumour which had been felt immediately above the pubes. The second tumour, which had been felt above the first one, was attached to the exterior wall, directly over the other, and was connected with the organ only by a small pedicle. A third tumour, of the size of a pigeon's egg, was found near the upper part of the cervix, making its way into the cavity of the uterus, and might probably, after a time, have made its appearance through the os, and thus have come within reach of a surgical operation. The external tumour proved, as had been supposed, to be the os and the greatly elongated and hypertrophied cervix.

The fact that one of the large tumours was attached to the uterus by a pedicle scarcely larger than a goose-quill, is interesting as showing how easily certain uterine tumours may be removed by the operation of hypogastric section. The external tumour, that is, the hypertrophied os and cervix, had there been no other disease to forbid it, might have been removed as in the case just related.

---

ART. II.—*Notice of the Spotted Fever as it occurred at Newport, Rhode Island, in the months of January, February, March, and April, 1863, with a History of the Disease, its Symptoms, Diagnosis, and Treatment.*  
By PHILIP S. WALLEs, M. D., Surgeon U. S. N.

DURING the past winter several sections of our country have been visited by a disease of a febrile character, very little known, and marked by peculiarities clearly distinguishing it from those fevers ordinarily met with. To some of the localities it appears to be an entire stranger, as in Philadelphia, for instance, where Dr. Gerhard assures us it never was witnessed before. The two epidemics of negro fever occurring in that city, the first in 1820-21, the second in 1848, were entirely different in their course and symptoms from the one under consideration, yet recognizing some affinity with it in being blood diseases. In both these epidemics the disease was almost always confined to the negro population, and thus in one prominent



character very unlike the spotted fever which recognizes no colour, class, age, or condition in life.<sup>1</sup>

Indeed, we might say that this fever is almost exclusively peculiar to New England, so rarely has it been seen in recent times outside of those States. From what I learn from the physicians of Newport, it would seem that they have known the disease to have prevailed latterly along with scarlatina and typhoid fevers in the towns and counties adjacent. Very likely this is so, and many cases may have been taken for typhoid fever, pneumonia, &c., and reported as such, or again, as anomalous cases of fever, as in the instance of Dr. D. Crary, of Hartford (see *The American Journal of the Medical Sciences* for January, 1863, p. 146). An old practitioner from Maryland recognized the disease at once in the first case that happened at Newport.

The army surgeons state that there were cases of this disorder during the winter, at Portsmouth, Va., Annapolis, and Washington, among the U. S. troops. A limited but fatal epidemic of the same occurred in Centre and York Counties, Pa., in the month of March. Between the months of February and April a number of cases showed themselves in Philadelphia, and its neighbouring towns of Manayunk, Norristown, Frankford, Chester, and the Falls of the Schuylkill. At Newport, Rhode Island, seven cases occurred among the midshipmen billeted on the school ship in the harbour, and on diligent inquiry, Assistant Surgeon Rickets could learn of no well authenticated cases in the town. A quack asserted that he had had two under his charge; both died.

These are, so far as I can learn, the limits of the disease as it prevailed last winter, though I am inclined to believe that many cases presented them-

<sup>1</sup> In December, 1812, a malignant typhus broke out at Camden, opposite Philadelphia. The disease appeared to possess characters different from ordinary typhus, and was extremely fatal under the system of treatment then pursued—evacuant.

When Dr. E. Strong's work on Spotted Fever appeared, the physicians were impressed with the idea that their malignant typhus was either a variety of, or a close analogue of, the fever described in that book. They thenceforth adopted the treatment he recommended—stimulants—with success.

In February, 1813, the same disease appeared in Philadelphia, first in the Northern Liberties, and spread in various directions over the city. At the same time the fever was prevalent in Frankford, Abington, Byberry, and in Philadelphia County, in Bucks County, and various parts of New Jersey. The disease was complicated with thoracic troubles, and was called "the epidemic pneumonia" by the practitioners in the various counties of the latter State. Several army surgeons, then in the neighbourhood of the disease, recognized it as the spotted fever of New England. See their letters in the *Med. and Philosophical Register*, vol. iii. page 491.

In the *Eclectic Repertory*, vol. iii. page 542, there is an allusion to the disease as it occurred in Philadelphia and Camden, in 1812-13.

selves both in the towns and counties of the New England States, New York, and Pennsylvania.

It is stated that the spotted fever first appeared in this country at Medfield, Mass., in the year 1806, and soon after in Connecticut. In 1810 it prevailed in the county of Worcester, Mass., with unexampled mortality, baffling the best endeavours of the physicians. In the autumn of 1812 it appeared among the United States troops at Greenbush and other military stations, making great havoc among them. So alarming indeed had the disease become that the counsellors of the Massachusetts Medical Society appointed a committee consisting of Drs. Thomas Welsh, James Jackson, and John C. Warren, to make all possible inquiry, and investigation into its history and treatment. Their able, elaborate, and judicious report occupies a place in that Society's reports (Vol. 1st).

During the winter and spring of 1813, it was prevalent and extremely fatal among the inhabitants of Vermont, in the upper part of the State of New York, in several inland towns of Massachusetts and Maine, assuming a number of treacherous shapes, and extremely mortal. Boston suffered at the same time, though in this city the disease affected principally the new levies of the United States troops.

The frequent appearance and fatal character of this disease drew forth several ably written papers on the subject. See report above mentioned, also a paper by Dr. Thomas Page, of Hallowell; Treatise on Typhus Syncopalis (spotted fever), by Thomas Miner, M. D.; Gallup on Epidemics; Thacher's *Modern Practice of Medicine*, Boston, 1826; Thomas' *Practice of Medicine*, by Prof. D. Hosack, N. Y.; Dr. E. Strong on Spotted Fever, Mass. Med. Society Communications, Vol. II., &c.

From these various works it would appear that the disease was well understood in all its protean forms, and remarkable success followed its treatment.

Dr. Page, in the paper above mentioned, describes four varieties of the disease. 1st. That which principally attacks the brain. 2d. The spurious *peripneumonic* form characterized by pain in chest and oppression of breathing, with cough and expectoration of viscid, dirty-brown matter, and in some of the most malignant cases blood completely dissolved. 3d. Where the disease was directed to the stomach and bowels, producing cholera morbus, or colic. 4th. When the extremities powerfully suffered with coldness, numbness, and pains. In all these different varieties one common type was observed as their basis, though veiled by the various modifications; and the same treatment was mainly successful.

So that it appears these local phenomena often draw away the attention of the physician from the main disease, spotted fever, as happened in Case VII., where the pneumonic symptoms were the most prominent, and this mistake was particularly apt to happen at this early period, the practitioners not being in possession of our present precious method of physical diagno-

sis; thus, what wonder to see the disease described under the various titles of peripneumonia typhoides, malignant pleurisy, &c.? So that, really, it was spotted fever that was alluded to by Dr. Hugh Williamson, as occurring in North Carolina in 1792 (see *Medical Repository*, first series, vol. ii.); and the same is true of the epidemic which prevailed in 1749, in Rhode Island, and reported by Dr. John Bard, in *Med. and Philosoph. Register*, vol. i. This is perhaps the earliest account we have of the spotted fever as it prevailed in the United States. There is indeed no reasonable doubt but that the typhoid pneumonia, which has prevailed from the earliest period of our history at various times, and in various sections, is identical with spotted fever, for says Dr. Thacher, op. cit.: "According to its various symptoms and forms, this pestilence has been termed bilious peripneumonia or typhoid pneumonia. In some of its appearances and forms it may be identified with the petechial fever above mentioned, but if it be a distinct disease, there is an obvious and close analogy in their nature and character." Again, Dr. Hosack, in the Appendix to Thomas' Practice of Medicine, says: "This disease (peripneumonia typhoides) is not a 'new calamity,' an 'unknown epidemic,' as it has been represented by some writers; on the contrary it has been well described by Sauvages (see *Nosologia Methodica*, vol. i.), Huxham, and others. The causes of the disease are no less compound than the disease itself. The local inflammatory affections are probably occasioned by the sensible changes in the atmosphere, while the typhoid character of the disease is derived from an epidemic constitution of the air, the same which has given rise to the typhus petechialis, or spotted fever, which has prevailed for some time past in our Northern and Eastern States, and which is doubtless a similar disease, with the exception that the present epidemic is implicated with symptoms of local inflammation of the chest, brain, or throat, &c., the effect of the present cold season of the year."

Dr. John Huxham described peripneumonia typhoides in the year 1759,<sup>1</sup> and Sydenham in 1680,<sup>2</sup> nearly two centuries ago; and the latter date is probably the earliest European account we have of spotted fever or peripneumonia typhoides, as it was then called.<sup>3</sup> Our medical fathers have given no description which to our apprehension embraces it, though we have no positive proof that it did not happen in the earliest times.

From all this, we conclude that spotted fever has prevailed at various

<sup>1</sup> See Huxham's Works—De aire et morbis epidemicis.

<sup>2</sup> See Thomas Sydenham, M. D.—Opera omnia. Schedula monitoria de novæ febris ingressu, page 486; et Cap. v. page 550—De Febre stationaria ab anno 1685 ad 1690.

<sup>3</sup> Some writers have stated their belief that Cullen and Hoffman have also witnessed the disease, the former alluding to it as a synochal fever, and the latter as a catarrhal fever. Boerhaave and Lientaud have imitated Sydenham in their allusions to the Febres Petechialis.

times both in Europe and America, under titles expressive of some of its numerous local complications or forms, and thus giving rise to errors in the recognition of the nature of the various epidemics leading to the separation of diseases essentially the same, and ignoring the identity of the constitutional malady common to them all.

*Symptoms.*—The advent of spotted fever is marked in different cases by an exceeding variety of symptoms; scarce two cases resemble each other. I shall first give a resumé or enumeration of the morbid phenomena presented by the cases which were seen at Newport, and afterwards submit the cases themselves in detail.

Patients are sometimes suddenly arrested in their employment or pastime with intense headache and delirium; but more commonly the disease begins with shifting pains in the extremities and joints, headache often of the most atrocious character, nausea, or vomiting, along with a chill, which last, however, soon subsides, and the characteristic delirium and dulness set in. The delirium varies in intensity, occasionally furiously maniacal, generally moderate and quiet; there is extreme restlessness and jactitation. The sensibility of the whole surface is sometimes so unwontedly increased that the patient cannot even bear to have his hair touched. There is generally remarkable prostration of strength, and the limbs seem paralyzed, and are numb, and in some cases even insensible; there is deafness, dimness of sight, or even complete loss of vision. A few have convulsions and opisthotonos. The tongue is moist, yellowish or brownish, never like the red, chapped, beef-like tongue of typhoid. The pulse small, even thready; sometimes extinct in very malignant cases, irregular or intermitting; skin cold, and occasionally of a deadly pallor, and like polished marble; eyes glassy, and the pupils irregular in their action, sometimes contracted, then suddenly dilated. When reaction takes place, the pulse becomes fuller, skin warmer, and then there is marked uneasiness, the patient tossing himself in every direction with delirium; these symptoms remaining three days, the patient may be restored to convalescence, or the disease may advance into stupor, and come to a fatal termination.

The intestines appeared in general to be exempt from the effects of the disease, except in Case 6, where there was obstinate diarrhoea; the others occasionally required a mild aperient. The bladder gives sometimes great annoyance, and hematuria is encountered from the very beginning. Profuse perspiration took place in one case, possessing a peculiar mawkish smell. One prominent symptom in Case 7 was inability to swallow.

One of the most peculiar marks of the disease is the *eruption*, which may occur in all stages of the disease, and in three of the cases below detailed it made its appearance on the first day, on the second day in three, on the tenth in one. The spots assumed the form of small, round ecchymoses of various sizes, from the head of a pin to the size of a split pea, of a light red colour, like the bites of fleas. As the case advanced the spots

increased in size and coalesced, forming larger ones, or, properly patches, and in bad cases assuming a livid or purplish colour. Again, the form was that of reddish streaks, as if caused by striking the parts with a bundle of twigs. In all cases the eruption was even with the skin, and appeared first upon the extremities, generally the upper, and then over the face and trunk. The duration of the spots varied, sometimes disappearing in two or three days, at others holding on for a couple of weeks, and then gradually disappearing as convalescence set in; or becoming larger and deeper on approaching death; and when this event happened, they resembled bruises, were very distinctly marked, and those previously quite light or almost imperceptible were readily observed. Most of the authorities upon this subject have generally stated that the eruption occurs throughout this disease in some of its varying degrees of size and colours, while on the other hand there is not wanting others who assert it to be only present in one out of six cases. All the Newport cases presented it, as will be seen below.

The passive hemorrhagic character of the eruption was well understood by those who saw so much of it between the years 1810-18. Dr. Miner has observed that common typhus may prevail along with this disease in the same season, but its characteristic symptoms, eruption, &c., suffice to prevent errors in diagnosis.

The above resumé of symptoms was drawn from the seven cases which I now append, and the statements of those who hourly watched the patients from the beginning of their illness to its end. The cases are described in the order in which they broke out upon the school ship. I should here remark that there are two vessels lying in the harbour of Newport attached to the Naval Academy, and used as schools for practical instruction of the midshipmen. The students occupied them as quarters, and slept in hammocks, in the usual manner of sailors, between decks. Those ships were always kept in the most excellent hygienic condition, as regards cleanliness and ventilation. For the latter, the Academy is much indebted to Surgeon James C. Palmer, U. S. N., whose suggestions as to the arrangement of steam pipes in the holds were carefully carried out by the superintendent of the institution with a most unlooked for, but yet truly gratifying success, exceeding the most sanguine wishes of their originator. The spotted fever occurred upon only one of the vessels, and as soon as the patients showed symptoms of illness they were removed to the shore hospital, also under charge of Surgeon James C. Palmer, so that there was universal concurrence in the opinion that a residence upon shipboard had nothing to do with the origin or extension of the disease.

**CASE I.** F. J. S., midshipman, aged 16, born in Virginia, was placed on the sick list January 15th, 1863, complaining of sore throat with slight headache, for which some simple remedy was prescribed. Later in the day he complained of severe headache, fever, and delirium; there were jactita-

tion and restlessness, tongue brownish. During the night these symptoms became more severe.

*Jan. 16.* This morning there is less headache, and though restless there is no jactitation. An eruption has appeared on the legs and arms, in some places of the bright blush of erythema, in others livid and as large as a pea, the result of extravasation of the blood; there are also some dark coloured pimples. Tongue brown, and the teeth covered with sordes. Yesterday evening his bowels were opened by a mild purgative, and a diaphoretic mixture with an opiate given. This morning cold water was applied to the head, and weak toddy given to support the strength, the typhoid condition being decided, with passive extravasation in the cutis.

*17th.* Patient in a drowsy condition, but when addressed answers promptly, and seems in full possession of his intellect. The livid spots are disappearing from the arms, but diffused blotches remain upon his hips; no fever; tongue now white in its middle and red at the tips and edges. Three small pustules made their appearance upon the right leg.

*18th.* The spots disappearing; delirium continues, though when aroused converses lucidly whilst engaged in conversation. No excitement of pulse, complains of much pain in the joints. Tongue covered with a thick coating of brownish fur, the teeth with sordes. Bowels moved by an aperient; apply a blister 3 inches by 6 inches to back of neck, ice to head. Brandy toddy and milk. R.—Pulv. Doveri, gr. x—hora somni. 7 P. M., tenderness in right iliac fossa with tympanitis.

*19th.* Slept some last night; delirium continues, and he passes his urine involuntarily. The eruption almost entirely disappeared, except the red patches upon his hips; pulse 145; extreme tenderness in epigastric and iliac regions; tympanitis. Teeth covered with sordes, and the tongue very brown and dry; debility extreme; face flushed; continued ice to head, sponge the surface with tepid water; dress blister with cerat. sabinæ; milk punch. R.—Ammoniac carb. ʒj; mucilag. acaciæ, syr. toltani, aa fʒij.—M. A teaspoonful every hour.

*20th.* The fever continued to progress all day yesterday until his pulse beat 163 a minute; became comatose finally, and died at 11.20 P. M. No post-mortem could be had in this case; anxious and distressed parents stood around the beds of most all of these young gentlemen from the beginning to the end of their disease, and took charge of their bodies when dead.

**CASE II.** L., midshipman, aged 17; born in N. Y.; admitted to the list January 28th, complaining of pain in the limbs, calves of the legs. The lower limbs present an eruption like the bites of insects, and he is inclined to believe that the roaches, with which the ship ("Santee") swarms, have bitten him. The spots are of an ecchymotic character, even with the skin, and of various sizes, and tints from pale red to livid. There is no other evidence of disease whatever.

*Jan. 29.* Patient has still the same marks upon the legs, but nowhere else; back of the right hand swollen and slightly red; calf of the left leg swollen and painful, but not reddened. Pulse and tongue natural, in fact there is no evidence of disease anywhere, except the ecchymotic spots, which, under other circumstances than the present would be taken for flea-bites, and not excite solicitude. Ordered, R.—Potass. chloras. ʒss; acid hydrochlor. fʒj; aqua dest. fʒviij.—M. A tablespoonful every third hour. Bowels have been freely opened. Milk toddy.

30th. Spots on the legs fading; the swelling of right hand, which occurred during the night, diminishing; tongue clean; pulse natural in frequency but too compressible; tenderness to the least touch all over the body, but particularly in the epigastric region, around the umbilicus, and in the right iliac fossa. No cephalic symptoms whatever. Stomach excessively irritable, and vomiting of a purplish coloured matter. The chlorinated solution was suspended, and tr. chloroform comp. f3j after each emesis. R.—Quiniae sulph. gr. ij; strychniae gr.  $\frac{1}{8}$ .—M. Every four hours. Blister 6 inches by 4 inches to epigastrium, continued sufficiently long to produce only a rubefacient action. P. M., was removed to the hospital in Newport, where immediate improvement set in. No vomiting from 1 to 10 P. M.

31st. Well-marked improvement; pulse natural, both in frequency, force, and volume; petechiae scarcely perceptible; slight tenderness to touch over abdomen; countenance natural; sponge with tepid water dashed with the liquor sodæ chlor.; continue strychnia every three hours. R.—Ol. ricini f3ij; ol. terebinthinæ gtt. x.—M. Take. Raw oysters, jelly, and milk punch—quiniae sulph. gr. ij every sixth hour. P. M. Has passed the day favourably except that he had an attack of vomiting, which was relieved by sinapism.

Feb. 1. Symptoms all favourable; bowels moved; pulse natural; tenderness scarcely perceptible; continue strychnia and quinia. R.—Cerii oxalatis gr. ij every third hour.

3d. Is decidedly convalescent, requiring no more medicine; continue nourishment.

6th. Gaining strength; out of bed.

14th. Continued to improve up to the present, and was discharged cured.

CASE III. W. K. B, midshipman, aged 17; born in Connecticut; was admitted to the sick list March 16th. Early in the morning small red spots, even with the surface, were observed upon the face and wrists, and were carefully watched; during the evening similar petechiae were seen upon the lower extremities. Fever and delirium also set in at this time with extreme restlessness; was brought from the ship and lodged in the hospital. Ordered, R.—Quiniae sulph. gr. xij; strychniae gr. ss.—M. et ft. pill. No. iv, one every four hours.

March 17. Has been delirious and in constant motion all day. Cut off his hair and applied cold to head. Continued same medicine as yesterday without the quinia.

18th. The patient is rather more comfortable, and has lucid intervals in the delirium; pulse soft; tongue natural; passed his urine, and had a motion of the bowels. Continue strychnia; apply blister to neck; cold to head.

19th. Abatement of all the symptoms. The strychnia was omitted yesterday evening on account of the occurrence of cramps in the gastrocnemii muscles. Repeat the medicine twice to-day.

19th. Had a paroxysm of fever towards evening; delirium pretty constant, though he recognizes his friends and answers correctly when spoken to. Bowels not moved. R.—Ol. ricini f3ij; coughs a good deal, and expectorates bloody mucus; fauces have been inflamed from the beginning. No abnormal sounds can be heard in the chest. Puts his hand frequently upon the right hypochondriac region as if he suffered pain there. Apply blister 4 inches by 6 inches over this region until the skin is reddened.

Milk punch during the night. Continue the strychnia. Pulv. Doveri gr. viij hora somni.

20th. Passed last night comfortably, generally in a sound sleep. Pulse less frequent, softer and more feeble; cough much abated; tongue more moist. R.—Pulv. Doveri gr. v, ter in die, strychniæ gr.  $\frac{3}{4}$  t. d. Diet, oysters, milk, punch, &c. Dress blister on the neck. P. M. The febrile exacerbation less violent than yesterday. Continue treatment throughout the night. Sponge surface with a mixture of equal parts of vinegar and water.

21st. Passed a good night; urinated twice, and is inclined to complain of trouble about the bladder. Suspend strychnia. R.—Spt. æth. nit. f3j, ter in die. Dress blister. Milk punch, oysters, Scotch ale, and quiniæ sulph. gr. ij, ter in die.

22d. The symptoms more favourable. R.—Tr. ferri chlorid. gtt. viij, ter in die; other medicines suspended; continue supporting diet, and give at bedtime, R.—Morphia sulph. gr.  $\frac{1}{4}$ .

23d. Recovering slowly but yet decidedly. Continue iron and diet.

25th. Convalescent. Continue diet and the tincture chloride of iron.

27th. The patient had to-day an accession of fever, is quite restless, with occasional opisthotonic convulsions; suspend the iron and resume the strychnia in same dose three times a day. Milk toddy, broth. R.—Morph. sulph. gr.  $\frac{1}{4}$  hora somni.

28th. The excitement of yesterday subsided. Nourishing diet; suspend medicine.

29th. Comfortable; diet same.

April 1. Again convalescent; diet as formerly.

3d. Condition good; has had profuse perspiration. R.—Acid. sulph. aromat. gtt. x, ter in die; ale, nutritious diet. P. M. Though doing so well up to this morning, he had been kept in a state of nervous agitation all day by the minute cares and extreme solicitation of his mother, who is sometimes unable to restrain her grief. His father arrived at 4 P. M., and though he did not at this time appear excited, in a few moments afterwards he fell in a paroxysm of convulsions, which continued, with short remissions till 9.30 P. M., and then yielded for about one hour. Mustard poultices were intermittently applied; cold to head, and his feet put into hot water; an enema of turpentine was also given. The second paroxysm yielded at 2 A. M. next morning, and left him insensible. The pulse varied all night in force, frequency, and regularity. R.—Tr. valerian f3ij, Brandy 3ss during the day.

4th. Somewhat more tranquil up to noon, and partially restored to sensibility; pulse fuller. Repeated turpentine enema; wine freely; cold to head, and hot water to extremities continued. At 6 P. M. had profuse *black vomit*, which kept up to the last. He expired at 8.30 P. M. It should be remarked that this young man came from Middletown, Connecticut, and had a few weeks before convalesced from scarlet fever. His family physician observed that this season all fevers in that place had a disposition to the typhus type, and I believe also said there were or had been spotted fevers there recently. He had been on board ship only a few days when taken sick.

CASE IV. D., midshipman, aged 16; born in Maine; was admitted March 29th. Was seized suddenly, and brought early from the school ship "Constitution" to the town hospital. Has headache, vertigo, and stupor; pulse



thready; ecchymotic spots upon lower limbs. R.—Strychniæ  $\frac{1}{3}$  t. d.; blister to neck; wine.

*March 30.* Stupor and vertigo less; pulse somewhat stronger and less frequent; fuller; tongue moist; headache still continues. Brandy toddy, beef tea, and strychniæ gr.  $\frac{1}{3}$ . To allay the nausea which has been very distressing—R.—Tr. chloroform. comp. gtt. xxx.

*31st.* Continues to improve; reaction complete; pulse increased in strength and less frequent; cephalic symptoms gone. Continue medicine and diet.

*April 1st.* Partial opisthotonos occurred last evening, the strychnia was accordingly suspended. Pulse irregular and feeble, but brought up by the free use of brandy.

*2d.* Opisthotonos relaxed during the night, but he was excessively restless until tranquilized by an opiate enema; continued to lie upon his face until morning; when he awoke he spoke but once, "it hurts," and was turned over upon his back. Brandy and stimulants were used freely without avail; he breathed his last at 9.10 A. M.

**CASE V.** G., midshipman, age 14; born in New York; admitted to the sick list April 8, 1863. At half-past ten o'clock last night he complained of sore throat, and had some fever and headache. The weather was bad, and prevented his immediate removal to the Naval Hospital in town, so he was detained on board until morning, having taken, during the night, spt. æther nit. When arrived at the hospital, he had stupor from which it was difficult to arouse him, but at these times he answered sensibly; headache; pulse thready, almost imperceptible; deathlike pallor; extreme debility; arms and legs dotted with minute ecchymoses; and passed the urine and feces involuntarily, the latter profuse, black, and intensely fetid. Stimulants were administered from the moment of his arrival, ammoniæ carb., sherry undiluted, milk toddy, and sinapisms to abdomen and extremities; these remained on a half hour before reddening the skin. The pulse did not rise under treatment. At 10 A. M. began taking the following formula: R.—Strychniæ gr. j; aquæ destil. f 3iv; acid. sulph. aromat. q. s. ft. sol. A tablespoonful every fourth hour. Also R.—Quiniæ sulph. 3j; tr. cinchonæ comp. f 3ss; acid. sulph. aromat. q. s.; aquæ f 3j. A tablespoonful every sixth hour. Frictions with tr. capsicum and chloroform to spine and surface. P. M. Had another evacuation, less profuse but of the same character as the first. Later in the evening some signs of reaction; pulse sensible to touch; great jactitation; pallor yielding, and there is even a tinge of redness on the cheeks; frictions kept up.

*April 9.* After 2 A. M. this morning, the patient became furiously delirious, and died at 7.48 A. M. Frictions with hot water, &c., and the internal administration of stimulants were perseveringly followed up to the last moment.

**CASE VI.** T. T., midshipman, age 17; born in New Hampshire; was admitted April 13th, complaining of pain in the glans penis, and of passing blood; warm hip-bath, and cups to spine near kidneys were ordered. R.—Spts. æther. nit. f 3j ter in die; pulv. Doveri gr. x, hora somni.

*April 14.* No material change in his condition since yesterday. Continue treatment.

*15th.* Hæmaturia much diminished, and is now labouring under severe catarrh; ordered magnesia 3j now; afterwards he was ordered quiniæ sulph.

gr. ij, ter in die, and five grs. of the pil. hydrarg. to be taken once during the day.

16th. Improving a little; urine slight, tinged with blood; nausea and pains of a rheumatic character in extremities; continue medicine as yesterday. To relieve nausea, R.—Tr. chloroform co. gtt. xxx, ter in die.

17th. Bowels constipated; enema and R.—Hyd. chlor. mitis gr. v; pulv. rhei gr. x.—M. Urine somewhat discoloured. Spt. æther. nit. and infus. lini.

22d. Up to this time has improved; no blood in urine; general condition better; pulse stronger; bowels somewhat constipated, for which was ordered a saline aperient; petechial spots have appeared on arms and legs.

23d. The parotid on left side has enlarged considerably. Apply unguent. iodinii. R.—Potass. iodidi gr. viij, tr. gentian comp. f3j, ter in die.

24th. Enlargement of right parotid gland this morning; the left very large. Continue iodine externally and internally.

25th. Both sides neck very much swollen, otherwise doing well. Continue medicine.

26th. Swelling declining on left side, and rather larger on the right; colicky pains sometimes severe. Omit iodide potass. R.—Tr. chloroform comp. gtt. xl at once, and repeat this medicine in doses of twenty drops pro re nata.

29th. Tumour on left side pouting, and declining on the right. Continue potass. iodid.

30th. Opened the abscess on left side at the angle of the jaw, and let out a large quantity of pus, with immediate relief. Apply poultice, and continue medicine; supporting diet.

May 1. Opened abscess on right side, and poulticed.

2d. Both abscesses discharging profusely, and passed stools, tinged with blood, during the night. R.—Calomelanos gr. v, ol. ricini 3j; M.; also tr. chloroform comp. gtt. xxx, twice.

3d. Bowels being loose last night, he took R.—Creta ppt. 3j, pulv. Doveri 3ss, ft. chart. No. j, and then R.—Ext. nucis vom. gr. ij, pulv. opii gr. vj, M. et ft. in pill. No. vj. One every six hours. Diet supporting.

7th. Improving gradually, but his bowels keep rather loose, though the last two stools are natural. The abscesses are discharging less. Suspend all medicine, ordered one pint of Scotch ale daily, and good nutritious diet.

8th. Small stools and numerous. R.—Plumbi acet. gr. vj, pulv. opii ij. M. ft. pil. viij. One every three hours; milk toddy, and warm diet.

9th. Pulse small, and 140 in a minute; ecchymotic streaks extending from both groins upwards upon the abdomen; discharge from abscess continues, and the diarrhœa is also frequent, but not large stools; these were checked for some hours by an enema of tannin. During the forenoon fell in heavy naps and snoring stertorously. Milk toddy, beef-tea, acid. nit. gtt. j, in each draught of beef-tea.

10th. Pulse 130; general appearance improved, though he is still very low. Supporting treatment. P. M. R.—Pil. hyd. gr. v.

11th. No evacuation since 3 P. M. yesterday. The enema of tannic acid has been repeated several times. Continue beef-tea and nitric acid, with other nourishment.

12th. Has diarrhœa again to-day, but was promptly checked by enema and opiates. Passed the night pretty comfortably.

13th. Pulse 100, and whole appearance indicating an improved condition of the patient, bowels loose; gave an enema after each evacuation.

16th. The patient remained about same up to this evening, when he discharged a quantity of coagulated blood from the bowels, and a general hemorrhagic disposition prevails. Continue to use nourishing and supporting aliments and stimulants.

24th. The patient continued in this debilitated and uncertain condition until to-day; there now seems to be a decided improvement; pulse 100, stronger and fuller. Continue same line of treatment.

27th. Convalescent. Continue treatment.

CASE VII. V., midshipman, age 15, born in California, was admitted April 30, complaining of sharp pain in the side, pleuritic in character; has had his feet wet; dry cups to side, all bleeding, either local or general, being contraindicated. Apply a blister 6 in. by 6 in. over seat of pain. R.—Potass. et antim. tartrat. gr.  $\frac{1}{2}$  every third hour.

May 1. Febrile movement moderate. Dress blister; ecchymotic spots upon legs and arms. R.—Spts. æther. nit. f3j, ter in die.

4th. Up to yesterday has had fever at intervals, but to-day it has been constant; no delirium. R.—Quiniæ sulph. gr. iij, bis in die, pulv. Doveri gr. viij, hora somni. No pain; the sputa tinged with blood. Continue quinia, effervescing draught, spts. æth. nit.

5th. But little blood in sputa; little cough; pulse weak; complains of sharp pain at a certain point on the œsophagus, which makes him averse to swallowing. Suspend all medicine; give nourishing food in small quantities at a time, and frequently.

6th. Swallows more easily. Continue diet.

7th. Improved a little; pulse 60, and peculiar, with long intermissions; the pneumonia, of which there were physical signs, has yielded to the treatment pursued; little fever. Add to each draught of the beef-tea acid. nitric. gtt. j.

10th. Less difficulty in swallowing; no fever; ecchymotic spots gone; little or no cough. Continue medicines.

14th. Up and out of doors; has been taking following formula: R.—Quiniæ sulph. gr. xvi; tr. gentianæ comp. f3j; aquæ f3iij.—M. A table-spoonful every third hour.

*Causes of the Fever.*—It was suggested a long time ago, by some of the New England physicians, that spotted fever resulted from the use of spurred rye, but this opinion was manifestly untenable, inasmuch as the disease prevailed among those against whom no such a cause could be operating. In a short time it became a settled opinion that its prevalence, like other epidemics, depended upon a peculiar state of the atmosphere, and the predisposition of the people being favourable to its operation. Yet they recognized as exciting causes intemperance, exposure to cold and wet, fatigue, anxiety of mind, and fears. So great is the latter an exciting cause, that Thacher remarks, "that the most fatal consequences have been known to result from the influence of horror and fear. The terrific name spotted fever, or cold plague, its well known fatality, the tolling of bells, its frightful visage, the weeds of mourning, and the tears of sorrow, wonderfully conspire to induce a morbid state of the system favourable to the reception of the disease, and tend more immediately, perhaps, than any

other causes to multiply the instances of mortality." The disease is recognized by all *not to be contagious*, and the epidemic at Newport showed not the slightest disposition to spread.

*Its Duration.*—In some cases the disease produces death in five or six hours, in others runs on for three or four weeks before a fatal termination. Case III. appeared to have died after seeming convalescence had been established. The greatest number die on the third and fourth days. In mild cases convalescence may be established on the third day, and, indeed, some extremely bad ones mend rapidly from that period. Dr. Miner states that in many of those cases which were neglected or treated with evacuants, a peculiar and usually irreparable sinking and exhaustion occurred on the third, fifth, or more commonly on the seventh day.

*Age and Sex.*—All classes, sexes, and ages, from one year to seventy, are its indiscriminate victims, though I am unable to find any reliable statistical matter bearing upon these points, in the works of those who have generally made these statements; indeed, we are led to believe that the rich and the poor, those living in sparsely inhabited districts, and those in towns and cities; those in densely crowded houses, and those in large, airy mansions, were alike subjects of the disease. Locality may have some influence upon it, for in the early epidemics the disease affected more particularly and more fatally the inland towns of New England, while those on the sea coast escaped, or had it in some milder form.

*Mortality.*—In New England the horror of the ravages of yellow fever had scarcely abated before spotted fever made its appearance, and was not less malignant and deadly than its predecessor. Prevailing more or less extensively in the interior of the country, and on the seaboard during the cold and damp months of winter and spring, this fever in some places on its first appearance was fatal to more than half those attacked; in other seasons and places the mortality was less, and under favourable circumstances only one in thirty or forty died. In Newport more than half died, and in Philadelphia and its environing towns, one out of every four or five cases proved fatal.

It appears that the mode of treatment has a vast deal to do with the result of this disease, for Dr. Miner mentions that two physicians, in the year 1823, had charge of 360 cases, of whom only twelve died, six adults and six children.

However, the mortality of the disease will vary with the season and locality, and observe the law of other epidemics in being more fatal at the beginning than at the latter periods of its epidemic occurrence. We might add this additional reason, when so much depends upon the prompt and energetic treatment of the fever, of its greater mortality during last winter than during the winter of 1823, the want of a sufficient acquaintance with its nature and treatment by the present generation of physicians, for to them it was as a new disease, an unknown emanation from the box of Pandora.

*Anatomical Lesions.*—Unlike some of the essential fevers, this affection does not present any characteristic lesions, but simply such as result from an *altered integrity of the blood*, characterized by a disposition to escape from its vessels. In those cases examined from 1813 to 1816, the brain and its meninges were always found congested, effusion of serum into the ventricles and subarachnoid spaces. One author states he met with coagulable lymph in the lateral ventricles. Changes in the heart, pericardium, lungs, and pleuræ, indicating generally passive congestions, subserous effusions of blood in patches of small extent, occasionally inflammation. The stomach showed submucous spots of the same character, and contained black vomit or such fluid as noted in Case III. No autopsic examinations were had in the Newport cases, and thus much valuable information was lost. It might be well to observe here, that the medical officer in the Navy has much opposition to encounter in the pursuit of post-mortem investigations, springing, in many cases, from deplorable superstition on the part of the sailor, and not unfrequently from the prejudices and narrow-minded developments of officers, more particularly those of the old school, whose travel and experience would seem to have circumscribed instead of expanding their liberality and common sense.

*Diagnosis.*—When this disease first broke out on the practice-ship Constitution, the first case caused some speculation and surmise as to its nature, but the correct diagnosis was readily arrived at in the second case. Dr. Miner truly observes, that “there may be with the inexperienced some hesitation as to the nature and name of the complaint; but upon the whole there is less liability to mistake than in the diagnosis of any other acute fever with which we are in the habit of meeting in the ordinary course of practice. Dysentery, cholera, cynanche, catarrh, cough, pneumonia, measles, rheumatism, gout, and even common typhus are often complicated with it; yet there is always some prominent symptom by which it may be determined when the general affection is that of typhus syncopalis” (spotted fever).

The suddenness of its attacks, the prominent severe headache and pain in the limbs, from the very beginning, with delirium, stupor and coma, and the occurrence in two or three days of an eruption, mark it at once as peculiar and distinct from the few diseases with which it could only be possible to mistake it. The countenance is expressive of extreme suffering and anxiety, and in some cases of a dull sallow hue, quite characteristic. It will be seen that in some of the cases above detailed, soreness of the throat was a prominent symptom, and this might lead one in the beginning of the affection to prognosticate scarlet fever, but the latter has an altogether different course, with an exanthem quite distinct from the ecchymoses of spotted fever.

Dr. Palmer was inclined to regard his first case as typhoid fever, but the rapid course of the disease, the early and peculiar eruption upon the skin,

and general character of the delirium, so different from typhoid, led him to correct his diagnosis to petechial fever immediately.

I heard of a medical gentleman who felt quite sure the first case of spotted fever, that came under his care, was one of smallpox.

*Prognosis.*—The prognosis in this malady should always be guarded, and its epidemic character as to malignancy, and its secondary complications always kept in view. From the histories of the New England epidemics it appears that in those seasons when the disease showed grave cerebral complications more prominently, the prognosis was bad, and, on the other hand, it was more promising when only the organs of the chest and abdomen seemed to bear the brunt of the attack. In the first class of cases some of the patients were comatose almost from the very inception of the fever, and required speedy and active treatment to afford them even a chance of life. Miner describes a peculiar kind of thoracic functional derangement, irregular in character, "the inspiration occurring only at intervals of several seconds, and being usually long and full, while the expirations were so short that the breath was parted with instantaneously. This condition, in combination with sinking, was often the first warning of danger in the insidious cases, and it was almost invariably irremediable."

Those patients who escape to the third or fourth day, with proper treatment, have encouraging chances of recovery.

*Treatment.*—In the treatment of this disease most all experienced physicians avoid blood-letting, and some condemn it in all cases. Dr. Page says that in the year 1816 he attended 220 cases of spotted fever, and bled but once to the extent of 8 or 10 ounces—a robust man, and even it might, in this instance, have been avoided. Dr. Miner holds nearly the same language, and states, "it should be observed as a rule to avoid anything that might *tend to waste the vital powers*. Evacuations, if copious, invariably render the mild cases severe, and the severe ones fatal. Probably more than three-quarters of the fatal cases were the consequence of spontaneous or factitious purging or vomiting."

Not one of the Newport cases could have been bled without dangerous, if not fatal, results.

*Purgatives.*—All energetic purgatives are likewise condemned, and one of the authors who has given the clearest account of the therapeutics of this disease, objects to the use of these medicines altogether until after the third day, when the mildest of them may be employed, as castor oil, rhubarb, &c., and along with a host of other practitioners, speaks highly of an injection of milk, salt, and sugar. Some patients were known to have died while under the operation of a dose of calomel and jalap.

*Emetics.*—Emetics of ipecac and sulphate of copper engaged the confidence of most practitioners when there was "a foul state of the stomach."

*Epispastics.*—This class of remedies always ranked high as therapeutic means in the treatment of this malady, and were always ordered early

in the disease, and as near the part most affected as possible; and in order to obtain these speedy good effects, the skin should first be excited by friction with strong tincture of cantharides—"so highly beneficial are these effects," says Dr. Thacher, "that blisters ought to be applied in succession to the head and chest until the most effectual relief be obtained. In every case of considerable violence the head should be immediately shaved and cold water and vinegar applied, while the back of the neck and temples are vesicated."

*Opium*.—Dr. Miner speaks of this drug as almost a specific, and I cannot do better than quote his own language: "A few cases imperiously required half an ounce of the tincture of opium in an hour, or half a drachm in substance in the course of twelve hours, before urgent symptoms could be controlled; and even some cases required a drachm in the same time. *All those patients whose symptoms were promptly met with opium invariably recovered.*"

*Arsenic*, in the form of Fowler's solution, acquired throughout New England, where the disease most prevailed, considerable reputation, and the most experienced physicians agreed in their expressions of confidence in its superior efficacy. The dose recommended was four to six drops every four or six hours, until its effects upon the system became evident by a peculiar sensation about the eyes.

*Strychnia*.—Dr. James C. Palmer, U. S. N., used, as he believes with great advantage, strychnia, beginning with the article early in the disease, and it will be seen that most of the cases above detailed were thus treated. Care should be taken that we should not confound the tetanic movements, a phenomenon of the disease, with those, the result of strychnia. I am inclined to think that the good effects attributable to that drug in the above cases resulted more from the quinia used in combination with it, and the stimulants employed at the same time.

*Stimulants*.—We come now to the most important class of remedies in the treatment of spotted fever, and those which bring us unmistakably immediately good results, saving patients from certain and impending collapse. Stimulants are applied in the usual manner externally, hot bricks, bags of sand, hot foot-baths, &c., billets of wood heated and applied to different parts of the patient's body placed between blankets. Frictions of the whole body with sweet oil have been highly recommended.

Among the milder internal stimulants we have hot teas made of sage, origanum, pennyroyal, peppermint, and the dwarf yew; more active than these, the volatile oils, particularly the oil of turpentine, both by the stomach and rectum.

Brandy and camphor form an excellent combination. Dr. Hall relates the case of a young married lady who was attacked by spotted fever after her first lying-in, and had mild delirium which soon rose to the most violent

fit of distraction, with supervening coma. In one hour 40 grains of camphor, and 180 drops of laudanum were given to her; and in the following three hours she took four hundred drops more, a bottle of Madeira wine, and some brandy; immediately after which she began to mend, and gradually recovered, contrary to the expectations of all her friends. In another case, where coma had set in, he gave in six hours 500 drops of laudanum with a quart of wine, and nearly as much brandy; the patient recovered.

Quinia and bark were most always administered towards the end of the disease, and followed up, when convalescence was established, by beef, mutton, and chicken.

I cannot do better than finish this summary of treatment by the observation of Dr. Hall: "That no disease requires more careful nursing, and perhaps none is more liable to relapses, and when severe relapses do occur, they are frequently dangerous and often fatal; but are to be treated as new cases."

#### ART. III.—*On the Presence of Air in the Veins as a Cause of Death.*

By JAMES SUMNER GREENE, M. D., of Dorchester, Mass.

OUR attention was recently called to this subject under circumstances which led us to consult authorities for the purpose of ascertaining the supposed frequency of the accident, the conditions under which it may occur, the signs and symptoms attending it, and the nature and amount of evidence required in a given case of death to prove that it resulted from this cause.

These inquiries satisfied us: 1st, That medical gentlemen generally entertain but vague ideas on the subject; 2d, That there is plenty of evidence on record of the occurrence of the accident often enough, under various circumstances, to make it requisite that every practitioner of medicine and surgery should be sufficiently aware of the character of the danger to be able to take ordinary precautions for its prevention, to recognize it when it occurs, and to act promptly and understandingly for its relief; and, 3d, That the investigations heretofore made, while they throw much light on the subject, are far from being complete and satisfactory; that the occurrence of the accident is at least possible under circumstances which have never yet been discussed in this light; and that the interests of science and humanity require, further, more careful and systematic experiments and observation to settle the questions in dispute and clear up the points of obscurity.

Convinced of these things, our object in this paper will be, after some observations illustrative of the first mentioned point, to present as concise



a view as possible of all the facts which we have obtained, indicating their chief sources. But while showing what is known, we hope at the same time to throw some new light on the subject, and to indicate what ought to be further elucidated; thus furnishing an index for future reference, and a starting point for new investigations.

There are several reasons why the subject is not better understood among us. In the first place, in its practical bearings, it is a comparatively recent one. Sufficient care has not always been taken, in making experiments, to guard against sources of fallacy, and opposite and contradictory theories have been proposed to account for the phenomena noticed. Moreover, many of the reports of accidental death referred to this cause have been meagre and unsatisfactory; while from the nature of the symptoms—they being such as may occur under similar circumstances, but from other causes than the one in question—there is room for doubt as to the agency; and against a majority of the cases on record, objections on one or the other of these grounds might be raised with considerable plausibility. For these reasons the subject has not yet fairly taken rank among the unquestioned facts of medical science, and is very unsatisfactorily treated by our latest standard authorities on surgery, obstetrics, pathology, and medical jurisprudence.

For example, none of the works on morbid anatomy which we have consulted make any allusion to the subject, except that of Jones and Sieveking (p. 364), and their remarks are comprised in a single paragraph. Of the works on medical jurisprudence in common use, only that of Taylor (p. 271) mentions the subject; while he refers to the accident only as connected with wounds about the neck, and makes statements as to its nature and causes which reveal very imperfect knowledge of the matter. Its surgical aspect is that best understood, yet Druitt dismisses it in twelve lines (p. 584); while Erichsen, who alone gives it due prominence, treats it as he has elsewhere, ably but somewhat controversially (p. 140), as do many of the French surgical authorities. Finally, Churchill's is the only system of obstetrics which makes any allusion to it whatever (p. 528). His remarks are just and valuable, but refer only to the occurrence of the accident after delivery, leaving other circumstances of not less importance unremarked. And yet, as will appear hereafter, the subject has important practical bearings upon each of these branches.

We will first consider the accident as it occurs during surgical operations, to which class a majority of the cases now known belong, and for convenience we shall include certain suicidal cases in the same category.

The first well authenticated instance occurred in the year 1818, in the hands of M. Beauchêne, at the Hôpital St. Antoine (OLLIVIER, *Dict. de Méd.*, art. "Air"). Within a few years thereafter similar cases were reported by MM. Dupuytren, Castara, Delpech, Roux, and Ulrich (VELPEAU, *Leçons Cliniques*, vol. i. p. 451, et seq., Amussat, *Recherches sur l'intro-*

*duction accidentelle de l'air dans les veines*, and Ollivier, *loc. cit.*), all ending fatally, and verified by post-mortem examination. Numerous other cases were made known, in which the symptoms bore close analogy to those before named, but which ended in recovery. Prominent among these are cases by MM. Roux, Clémot, Goulard, Mirault, Rigaud, Delaporte, Maligne, and Amussat (*Id.*). In this country a case was reported by Dr. Valentine Mott (*Am. Journ. Med. Sci.*, Nov. 1828, p. 107), one by Dr. Mussey (*Id.*, Feb. 1838, p. 391), and three by Dr. John C. Warren ("On Tumours," 1839, and *American Cyclopædia of Pract. Med. and Surg.*, vol. i. p. 263). Two of Dr. Warren's cases were well marked, and though recovery followed in one of them, and in the other no autopsy was obtained, yet no doubt as to their nature existed in the minds of the surgeons who witnessed them. In 1838 M. Velpeau took up the subject in his *Cliniques* (*op. cit.*), giving a synopsis and brief analysis of 31 cases, including those of Drs. Warren and Mott, and one by himself. The following year M. Amussat's work appeared (*op. cit.*), in which the details of thirty-six cases occurring in human beings were given. In 1843 Professor Wattman, of Vienna, published a monograph on the subject, in which he reported four cases witnessed by himself. Not having seen his paper, we derive our knowledge of it from able reviews by Dr. John Reid (*Physiological Researches*, p. 539), by a writer in the *Am. Journ. Med. Sci.*, vol. ix. p. 170, and by one in the *Br. and For. Med. Rev.*, vol. xxiii. p. 443. The last named writer collected and arranged in a tabular form 54 cases, more or less authentic and complete in detail, including all those of MM. Velpeau and Amussat, except four very doubtful ones of the latter, which occurred before the possibility of the spontaneous entrance of air into the veins was recognized. Besides these we find cases reported by Dr. March, of Albany (*COOPER'S Surg. Dict.*, 1838), by Dr. Marcacci (*Revue Médicale*, 1847, p. 599), by Prof. Portal, of Palermo (*Id.*, 1839, p. 98), by M. Riberi, of Turin (*Gazette Médicale*, 1843, p. 204), by M. Schmid (*Id.*, 1851, p. 561), by M. Girbal (*Id.*, 1853, p. 46), by Dr. R. H. Coolidge, U. S. A. (*Philadelphia Medical Examiner*, 1849), by Dr. Willis, of Barnes, England (*London Med. Gaz.*, xli. p. 608), by Mr. G. F. Lane (*Id.*, xlv. p. 926), and by Mr. Ward and Mr. Hutchinson, each a case (*Med. Times and Gazette*, Feb. 1856). That reported by Dr. Coolidge was a case of suicide. Finally, and while this paper is undergoing revision for the printer, we are apprised of another accident of a similar nature occurring under the hands of Dr. Henry G. Clark, of Boston, Surgeon at the Mass. General Hospital.<sup>1</sup> It

<sup>1</sup> The patient in Dr. Clark's case was undergoing an operation for the removal of a very large glandular tumour, occupying the whole side of the neck, and during the latter part of it, and when traction was made upon the tumour, a sucking sound was heard, and bubbles were distinctly seen to enter the jugular vein near the clavicle. The vein had been tied above the wound when the operation was begun, and therefore there was no bleeding to obstruct the view of the orifice. Pressure

is very possible that other cases have been reported, but these are all that have met our observation.<sup>1</sup> Of these 67 cases, much the larger portion occurred during the removal of tumours of the neck, breast, and axilla; two, those of B. Cooper and Delpech, were in amputations at the shoulder-joint; one, that of Mussey, was during amputation of the scapula and clavicle; two, those of Rigaud and Clémot, were while tying the subclavian artery; three were during venesection at the external jugular; three during venesection at the median vein; and one, that of Willis, was during the insertion of a seton-needle in the neck. Among the veins wounded were the external jugular in 13 cases, including the three above named; the internal jugular in 10 cases, the subclavian in the case of Mussey and the axillary in that of Goulard. One, attributed to Dupuytren, is referred to the internal saphena vein; but this, as well as those referred to the median vein, is not entitled to much confidence. In the others the vessel was either not known, or was ascertained to be a branch of one of the above named veins, cut either about the neck, shoulder, axilla, or breast.

What are the characteristic symptoms? During the progress of an operation, when all seems going on well, a peculiar sound is heard at the bottom of the wound, oftenest described as gurgling, hissing, or bubbling. There is frequently a slight issue of venous blood, indicating that a vein is wounded, and often bubbles of air are noticed at the point from whence the sound proceeds, as in the cases of Drs. Warren, Mussey, Clark, and others. The patient suddenly turns pale, utters a cry, such as "I am faint," "I am dying," and becomes insensible; or there may be observed anxiety of countenance, laboured respiration, lividity of the lips, dilated pupils, and convulsions. These symptoms may gradually give way and the patient recover, or they may result in death. The state of the pulse is very apt to be overlooked in the confusion incident to such dangerous and unlooked for symptoms; when sought, it is usually feeble and often imperceptible. Sometimes, however, as in the case of Dr. Mott, violent and irregular action of the heart is observed. Again, lividity of the face and stertorous breathing may be prominent symptoms, as in the cases of Dr. Warren. In the cases of Drs. Beauchêne, Mussey, Portal, and Girbal, a cold sweat was seen to break out upon the face. In Dr. Warren's fatal case a vermilion flush was seen upon the previously livid cheeks during the progress of the efforts at

was instantly applied, and the sound ceased. The vein was then tied below the wound, and the operation was completed without any apparent ill effects. These facts were kindly furnished us by Dr. Clark, who will publish a detailed account of the case in the *Transactions of the Boston Society for Medical Improvement*.

<sup>1</sup> Mr. Taylor refers to a case published in the *Association Journal* (1853, p. 9), but we have not the particulars. Prof. Valentine Mott writes to M. Amussat (see Amussat, *op. cit.*, p. 157) that he has witnessed three fatal cases in this country; but the details he gives do not enable us to decide whether they are identical with any of those included in the above category or not.

restoration, but soon vanished. In the case of Marcacci a violent cough, lasting twenty minutes, was a noticeable symptom. In Bransby Cooper's case there was involuntary ejection of urine and feces. Syncope is often the predominant feature, and the patient may die with scarcely a struggle. A dull, rustling sound was heard in the thorax in one of Wattman's cases, distinct from the hissing noise at the wound; and the same sound is said to have been heard in Beauchêne's case, but we do not find it mentioned in any of the accounts of it which we have consulted.<sup>1</sup> In the later case, by M. Girbal, auscultation of the heart was practised, and revealed a *bruit de gargouillement*, completely masking the tic-tac. These, however, are the exceptional signs and symptoms; usually their course is much as at first described. A few of the more prominent ones require further notice.

The warning sound at the wound is almost invariable. Thus, it was distinctly noticed and described in 48 instances, including one of suicide, and comprising almost all the cases of which we have any details. It has been described as a peculiar sound (*un bruit particulier*) exactly like that which air produces in penetrating by a small opening into the chest of a living animal, a prolonged hissing (*un sifflement prolongé*) analogous to that produced by the return of air into an exhausted receiver (*par la rentrée de l'air dans un récipient ou l'on a fait le vide*), a very noisy snuffling (*reniflement très bruyant*), &c. &c. (OLLIVIER, *op. cit.*). It is sometimes repeated more than once, as in the cases of Castara, Rigaud, and Clémot. It always ceases upon placing the finger upon the spot whence it issues, and is likely to be renewed if the pressure is removed, as occurred in the cases of Beauchêne and Clémot, and in one of Wattman's.

Directly upon this sound usually follow syncope or convulsions, or both. In 25 cases, only the symptoms of syncope were remarked; in 6, convulsions without syncope; while in 7, syncope was succeeded by convulsive spasms. In the remaining cases, either no general symptoms occurred or death was described as immediate, and no particulars given. Tetanic spasm was noticed in the case of Mirault; opisthotonos, in that of Asmus; and distortion of the face, followed by temporary hemiplegia, in that of Mott. In 13 cases, the respiration was noticed to be embarrassed, hurried, or irregular.

A sudden cry or exclamation was heard in 17 cases. "My blood is falling into my heart; I am a dead man," were the words uttered by Beauchêne's patient. In the case described by Mr. Lane, a small opening was made in a tributary of the axillary vein, a noise like the sucking of water and air into a syringe was heard, and the patient exhibited symptoms of syncope, which were followed by convulsions. She recovered, and in describing her sensations afterwards, said that "she felt something bubble, bubble under her arm and shoot quite cold across her breast, and just as

<sup>1</sup> See Ollivier, Velpeau, and Amussat, *op. cit.*

she went off she got quite cold all over." This symptom is of course wanting when the patient is fully etherized, as in Dr. Clark's case. In M. Girbal's, the patient had inhaled chloroform, but was becoming conscious at the time of the accident, and uttered a "slight, plaintive cry." Nine cases in which the sound was heard were followed by no bad consequences whatever, and 24 recovered after symptoms of more or less severity. Of the fatal cases, 24 died immediately, or within a few minutes after the conclusion of the operation. The patient of Willis lived 7 hours; that of Mirault, 3 hours; that of Clémot, some hours; that of Girbal, 13 hours; one of Roux, 7 days; and one of Wattman's, 28 days. Of the remaining 4 cases, we have no particulars. The patient of Wattman died finally of pneumonia; that of Girbal, with symptoms of asphyxia; but no autopsy was made in either case.

Of the fatal cases, 18 were examined after death. In that of Graafe it was merely reported that no important organ was wounded, and that the heart and great vessels were natural. It was mere conjecture that placed it in the present catalogue; all that was stated of the circumstances being that syncope and death occurred during the removal of a gland in the axilla. In the case of M. Beauchêne neither air nor blood was found in any of the cavities of the heart; but there were numerous bubbles of air in all the vessels of the brain, in the inferior vena cava, iliac veins, aorta, and crural arteries. Dissection in this case was made eighteen hours after death. In the case of M. Roux, where death was delayed until the seventh day, the cavities of the heart were also found empty, and no air was discovered in the veins, while the aorta and iliac arteries contained air mixed with blood. It is noticeable also that the lungs were œdematous, and the bronchia contained frothy mucus. In the remaining 15 cases air was found in the right cavities of the heart. In 4 cases, besides the two above named, air was found in the arterial system: those, viz., of Dupuytren and Gorré, and the suicidal cases of Pellis and Handyside. In 6 cases the air in the heart is stated to have been mixed with blood; in 2 it is stated that it was not so mixed; while in the remainder the condition in which it existed was not remarked. In 8 cases air was noticed in the venous system; in only 2, those of Willis and Coolidge, was it particularly noticed in the pulmonary artery. In both cases of M. Roux it was stated that no air was found in the vessels of the brain; while in M. Dupuytren's case it was found there. The length of time elapsing before the autopsy, is stated in but six of the cases: in these it was from 18 to 26 hours, with the exception of one, in which it was 52 hours. In the case of Roux a rough analysis of the gas contained in the heart was made, and it was decided to be atmospheric air. In the case of Pellis an analysis was made by M. Bischoff with a similar result. M. Roux also measured such of the air contained in the right ventricle as he could collect, and found 11 centimetres cubes (about two-thirds of a cubic inch).

We have now seen that accidents, all dangerous, and many fatal, do occur under specified circumstances, ushered in by a sound indicating the entrance of air into a vessel, attended by a peculiar class of symptoms, and in which the autopsy, if one is made, uniformly discloses the presence of air in the circulatory system. Let us now see if anything is known corroborative or explanatory of these facts. Here, as in all physiological investigations, we resort to experiments upon animals. We find, however, that experiments bearing upon the subject were made long before the subject itself was known to have any practical importance.

Nearly two centuries ago it is stated that Wepfer killed an immense ox by blowing air into the jugular vein. Similar experiments were afterwards made upon dogs and sheep by Redi, Bohn, Heydus, R. J. Camerarius, Brunner, Harder, Sprægel, and Valisneri (MORGAGNI, *De Sed. et Caus. Morb.*, Epis. v.). Dr. Langrish, an English physician of the last century, made similar experiments upon dogs; and Châbert, a French *vétérinaire*, upon horses. The chief practical result seems to have been the adoption of this as a convenient mode of killing superannuated horses (OLLIVIER, *op. cit.*, p. 66). At the beginning of the present century interest was reawakened in the subject by Bichât, who made some new, but as it proved, erroneous statements relative to the amount of air necessary to produce death, believing that a single bubble alone was sufficient (*Récherches Physiol. sur la Vie et la Mort*, art. ii. part ii.). In 1809 Nysten published the results of numerous and careful experiments made by him upon animals with a view to determine the effects produced upon the animal economy, by the presence of atmospheric air and various gases in the circulatory system. At this time nothing was known of the possibility of the spontaneous entrance of air into an opened vein, except a case reported in 1806 by Verrier of its entrance into the jugular vein of a horse when opened in phlebotomy (VELPEAU, *op. cit.*). It is true that Redi and Caldesi saw air circulating in the veins of tortoises, Lancisi in hedgehogs, and Morgagni in vipers, trout, and carp, after being wounded; but they inferred that it existed naturally in those animals. It is true also that Méry noticed the appearance of air in the lower vena cava of a dog, after puncturing the vein; but he thought it was developed in the smaller venous branches, and passed forward to fill the vacuum caused by the escape of blood (MORGAGNI, *op. cit.*, secs. 22–26). Haller, indeed, who witnessed the same phenomena, was convinced that they only appear after a considerable wound of some vessel, and that they are not seen when the veins have been well managed. Nysten himself had observed many times that the veins and right auricles of decapitated men were distended with air; but he made no attempt at its explanation (*Récherches de Physiol. et de Chimie Pathologique*, p. 5). After instances became known of death in the human species attributed to this cause, these experiments and observations became matters of more practical interest. Dr. Wing, of Boston, published the result of experiments made

by him upon rabbits and sheep (*Boston Med. and Surg. Journ.*, May 14, 1834). Other experiments are recorded by Magendie (*Leçons sur les Phénomènes Physiques de la Vie*, 1836), and by Dr. John Rose Cormack (*Inaugural Dissertation*, 1837). In 1837 a warm discussion arose in the French Academy of Medicine, consequent upon the account given by M. Amussat of a case occurring under his hands, and where recovery was attributed to the means used by him (*Bulletin de l'Académie*, vol. i. pp. 895 and 905). On this occasion M. Gerdy and others denied the probability of the entrance of air causing death in human beings, chiefly on the ground that the symptoms reported differed from those noticed in animals when air was forcibly injected. The discussion resulted in the appointment of a commission, of which M. Bouillaud was reporter, before which M. Amussat exhibited a series of forty experiments on dogs, horses, and mules, to determine the effects of the spontaneous entrance of air, and the various circumstances which modify those effects (*Id.*, vol. ii. p. 182). Later experiments have also been recorded by Mr. Erichsen (*Edinburgh Med. and Surg. Journ.*, Jan. 1844), by M. Bernard (*Des Substances Toxiques et Médicamenteuses*, pp. 161–163), and by Prof. Dalton (*Am. Med. Monthly*, June, 1860, p. 507).

Some of these results are in brief, as follows: It was found that the injection of air into the veins of a living animal, whether by means of a syringe, as in the experiments of Nysten, or by insufflation through a tube, as in those of Dr. Cormack, produced symptoms proportioned to the quantity used and the rapidity with which it was injected. When injected little by little, and repeatedly, the result was the expectoration of a transparent frothy liquid, mucous râles, and death sometimes as late as the third day. A still less quantity produced only momentary excitement of the heart's action, followed, after repeating the injection, by an enfeebling of the pulse. Sometimes complete recovery took place after quite violent symptoms. The phenomena produced in the fatal cases were as follows: *A bruit particulier* was heard, coming from the region of the heart, and synchronous with its systole. This was caused by the mixture of air and blood taking place in that organ, and sometimes lasted many minutes. It was compared to the sound produced by beating white of egg and water together (*en battant ensemble du blanc d'œuf et de l'eau*. Nysten, *op. cit.*, p. 16). The animal uttered some cries of suffering after the first injection, the pulse became more frequent, the respiration quickened and panting, the limbs stiffened and sometimes agitated by convulsive movements, the urine and fecal matters were forcibly expelled, and in proportion as the experiment was prolonged the pulse grew feeble and ceased to be felt, the inspirations became rare and deep, and death soon followed. If a fatal quantity was introduced at a single injection the effects were sudden falling, cries, convulsions, and almost instant death. Dr. Wing noticed in some of his cases that the heart palpitated violently, and then suddenly ceased

altogether. We have noticed the same thing in a cat subjected to a like experiment. The heart thumped violently against the walls of the chest several times, ceased suddenly, and again thumped as before. Its action ceased altogether in less than a minute after air entered, with the exception of the right auricle, which continued its contractions for several minutes.

The quantity of air necessary to produce death varied with the different species of animals, and among different individuals of the same species. Some of the earlier experimenters noticed that dogs succumbed sooner than sheep, and Morgagni concluded that it was because the latter were colder blooded animals (*op. cit.*, sec. 22). Nysten estimated that between 40 and 50 centimetres cubes (2.44 to 3.05 cubic inches) for a small dog, and from 100 to 120 centimetres cubes (6.10 to 7.32 cubic inches) for a large dog were required, and much larger quantities for larger animals. Dr. Wing found that a volume equal to f3ij did not kill sheep; the symptoms subsided in about 20 minutes—f3vj produced apparent death in a sheep, and f3ij killed rabbits in a few seconds. According to Mr. Rey, Professor in the Veterinary School at Lyons, two full expirations are required to kill horses, and sometimes a much larger quantity fails to cause death (*Gaz. Hebdomadaire*, 1861, p. 437). He states that he has heard the *bruit de glouglou* in these animals for some hours after bleeding without any accompanying disturbance of the general functions.

The experiments of the French commission, and those of Erichsen, are the only ones recorded in which the air was spontaneously admitted; in these the circumstances were made to resemble, as closely as possible, those under which it accidentally enters the veins in man. The vein opened was the internal jugular in most of the cases; once the subclavian was selected, once the axillary, and once the brachial near the border of the axilla. It was found that air always entered these veins in those parts to which the venous pulse extended, and not beyond that limit unless the orifice was put upon the stretch, or a tube inserted to the part where the venous pulse existed. The entrance of air was always announced by a lapping sound (*lappement*) in dogs, and a gurgling *glouglou* in horses. This was heard at the wound, and was generally synchronous with the inspiration, but sometimes with the diastole of the heart. Auscultation of the heart in dogs revealed a sound described as a mixture of blowing and gurgling (*un mélange de soufflé et de glouglou*) as a churning sound, or as a *bruit de souffle* accompanied by a *bruit humide*. This sound is not mentioned as occurring in horses. During expiration frothy blood often made its escape from the wound. The symptoms were much as when air was injected, but death was more gradual. Anxiety and agitation, great debility, laboured respiration, cries, and violent convulsions, with ejection of urine and feces, preceded the fatal termination. Death occurred in from 3 to 36 minutes in healthy dogs. It took place sooner in the vertical position than in the horizontal. The symptoms seemed to be aggravated in this position, pro-



ably in part because the escape of blood and froth at the orifice in the vein was prevented. It was found that death took place sooner if the animals were debilitated before the experiments. A few experiments were tried to ascertain the remedial effects of suction and of compression of the chest, but they gave no satisfactory results.

Examination after death constantly showed great distension of the heart with frothy blood, which was also found in the pulmonary artery, and in more or less of the larger veins. In horses, air was also found in the arterial system in all cases. This was attributed by M. Bouillaud to the larger size of the pulmonary capillaries in those animals than in others, an explanation which may also help to account for the greater quantity of air required to produce fatal effects in them. In dogs, air was found in the arteries and left cavities of the heart only when death was delayed for some days after the experiment. This condition was found in three out of four cases, of the commission, thus delayed; in the fourth the heart and vessels were found collapsed and flabby, and containing no air, as was the case in all the similar experiments of Nysten. No distinction can be drawn between the post-mortem appearances in the cases where the admission of air was spontaneous and those where it was injected. Erichsen states that in many experiments by him the right cavities of the heart, though they contained bloody froth, were not distended by it (*op. cit.*, p. 8); and he draws an argument from this in favour of his theory, that distension of the heart has nothing to do with the production of death. However true the theory may be, the fact is entirely at variance with those remarked by other experimenters, as well as with the condition of the organ noticed in man after death from the same cause.

The brief *resumé* which we have now given of the results of experiment upon animals, imperfect though the experiments were, sufficiently establishes, by comparison with the accidents in man which we have considered, that the two classes are of the same nature, and due to the same cause.

Let us now consider another class of conditions, less understood than the preceding, under which air may enter the circulation and produce its characteristic effects, viz., through the veins of the uterus.

A fact illustrative of this possibility was observed by Legallois (*Jour. Hebd. de Méd.*, 1829, vol. iii. p. 183). A female rabbit had had two successive inversions of the uterus after parturition, and he had placed himself to watch her, when all at once she struggled (*se débattre*) convulsively and died in less than three minutes. The right auricle was full of bubbles of air; the pulmonary artery, and the two anterior vena cavae contained them only in the portions near the heart, while the posterior cava was filled with them as far as the place where it received the uterine veins, and no farther. These veins themselves were also filled with air, especially the largest of the right cornu. This cornu was red and rather livid, and interiorly presented numerous bullæ filled with air. M. Legallois had seen

the same thing in two other cases. His son, who relates this experience, asks if some of the cases of sudden death in women recently delivered, and where the autopsy has failed to disclose any adequate cause for the catastrophe, might not find explanation in this way; and M. Ollivier repeats the question, and pronounces it worthy of investigation (*op. cit.*). Some years later M. Nélaton observed that the liquid injected into the uterus of a woman who had died of erysipelas of the face, passed into and distended one of the veins of the large ligaments, driving before it bubbles of air (*Gazette Médicale*, 1840, p. 568).

In 1844, Prof. Simpson furnished Dr. John Reid with the following details, which first gave him the idea that death might occur from the introduction of air into the uterine veins. The patient had been delivered of twins; post-partum hemorrhage, with alternate contractions and relaxations of the uterus supervened, and she seemed to rally very imperfectly from the effects of the flooding. "I saw her," he says, "an hour or two afterwards. She had then a very weak and rapid, almost imperceptible pulse, an extremely anxious countenance, and here and there was an evanescent scarlatinoid rash over the surface of the body." After death the uterine and hypogastric veins, and lower vena cava, as well as the larger veins of the extremities, were found full of frothy blood. He had since seen two other cases in which the same symptoms were present, but no autopsy was made.

Dr. John Rose Cormack read an essay on this branch of the subject before the Western Med. Society in 1850, but we have not access to his paper. It contained reports of seven cases, viz: that of Professor Simpson given above, one related by M. Bessems, particulars of which we shall give hereafter from the original source; and the five following, the few details of which we derive from the paper of Mr. May.

1st. A case by M. Lionet, of Corbeil: A lady, aged 27 years, had a natural labour with no hemorrhage. She soon became faint, breathed with difficulty, and expired five hours after delivery. Air was found in the heart and cerebral vessels. 2d. A case by Dr. Wintrich: Convulsive movements and suffocation followed expulsion of infant and partial separation of placenta. Air was found in the venous system. The other three cases were observed by Dr. Lever, of Guy's Hospital. In all of them there was hemorrhage after delivery, and death in a few hours. Air was found in the uterine and other veins. The following are the important features of a case reported by Mr. Berry (*L. and E. Monthly Journ. of Med. Sci.*, 1851, p. 189, from *Progr. Med. and Surg. Journ.*). A lady, aged 22 years, was safely delivered of her first child about 7 o'clock P. M. The labour was natural, and there was no hemorrhage. She expressed herself as feeling comfortable up to 11 o'clock. At 1 o'clock her husband became alarmed by her difficult breathing and sent for the physician, but before he arrived, at 2 o'clock, she had expired. A post-mortem examination was made on

the morning of the second day. The uterus was midway between the pelvis and umbilicus. The peritoneum covering it was healthy, but pale. The vessels where the placenta had been attached were patulous. The vagina contained, at its superior part, a moderately sized clot of blood. The heart was the size of a male heart, and apparently distended. Upon making an incision into it, a gush of air escaped and the organ became flaccid. No blood was found in any of its cavities. The kidneys presented a granular appearance, and the lungs contained scattered tubercles in their upper lobes. The other organs were healthy, and there were no signs of decomposition.

The three following cases were reported by Mr. May in the *Br. Med. Journ.* (*Am. Journ. Med. Sci.*, Oct. 1857). The first occurred to Mr. Taylor, of Wargrave. Labour was proceeding naturally when, as no urine had been passed, he attempted to introduce a catheter. At this moment a severe pain occurred, accompanied by the escape of about  $\frac{3}{4}$  pt. of liquor amnii. The patient exclaimed, "Oh! how faint I feel!" was convulsed a moment and expired. Autopsy 48 hours after death. Uterus above umbilicus. Placenta upon anterior surface, not separated. Scarcely any blood in uterus, lower vena cava, or heart. Right auricle thin and distended with air.

The second case was furnished by Mr. Smith, of White Church. The patient was naturally delivered, and comfortable. Severe after-pains occurred, and soon great oppression was felt about the chest, with sinking, exhaustion, and restlessness, speedily followed by death. Autopsy the same evening. Body not yet cold. The uterus was large, and contained a piece of the placenta adhering; it contained a coagulum, but not large enough to have produced death. The right side of the heart was distended. On opening it a puff of air escaped and the organ collapsed. The valves were healthy. A small clot was contained in the left ventricle.

The third case was seen by Mr. May himself. The labour had been natural and the patient had resumed her duties, when, on the eighth day after delivery, she was taken suddenly ill and expired. Autopsy the following day. No evidence of decomposition. Frothy blood was seen on slicing the liver. Air in inferior cava and venæ portæ. The right heart was distended with frothy blood. Uterus the size usual on the eighth day.

Professor Oppolzer relates a case of uterine carcinoma (*Br. and For. Med.-Chirurg. Rev.*, vol. xxx., 1862), in the course of which air entered the circulation. The attack began with acute pains in the hypogastrium, extending over right thorax. In about 24 hours the skin of the whole right side was intensely red, and covered with vesicles filled with reddish serum. The redness proved to be due to hemorrhage. A subcutaneous emphysema was observed in the epigastric region. Collapse set in, and death took place in a few hours. The details of the autopsy, which was made 33 hours after death, were very minute. The integuments, as well as the

spleen, crepitated on pressure. The viscera were pale and flaccid. Air or frothy blood was found in the right cavities of the heart, beneath the visceral layer of the pericardium, in the vessels of the liver and kidneys, the internal spermatic vein, and vena cava. The latter gave a tympanitic resonance on percussion. The disease proved to be villous cancer.

These eleven cases are all that we have been able to collect in which death was attributed to the spontaneous entrance of air through the uterine veins. Some of these are too meagre in detail to admit of an opinion being formed upon them; while in one or two it seems possible that the gas found in the vessels was developed there by morbid changes, but in other cases the evidence is strong in favour of the cause assigned, and when taken as a whole we think little doubt can be entertained as to the nature of the accident. The chief obstacle to full belief, in many cases, is the failure of the observers to state the precise condition of the body, as to post-mortem changes, and what precautions, if any, were taken to prevent the admission of air during the autopsy. But when we remember that the gentlemen who reported them were generally men of experience and eminent in the profession, and that the presence of air was suspected beforehand, we cannot doubt that, at least, ordinary precautions were taken against fallacy. It will be asked whether air may not be oftener present in the heart after death than is generally supposed, but only noticed when specially sought for. To this it may be answered that Dr. Cless, of Stuttgart, examined 1200 bodies after death from various diseases, with especial reference to this possibility, and only found air in fourteen cases, and those where the previous symptoms had led to the suspicion that air was present. (*Trans. of Path. Soc. of London*, vol. ix. p. 154.)

We now come to another class of cases, where the addition of another link in the chain of evidence renders it nearly or quite conclusive as to the cause of death. Among these we place the case of M. Bessems. It was one of adherent placenta in a hospital patient. Uterine injections of chlorinated water were being used, and previous to each injection small portions of the placenta had been torn away; the patient was weakened by loss of blood. It is stated that special care was taken to exclude bubbles of air from the syringe. On injecting the fluid for the third time, the woman immediately sprang up in bed (*se projette sur son séant*) and stretched out her arms, crying that she was suffocating. The head then fell backwards, the face grew pale, the eyes rolled upwards spasmodically (*se convulsent en haut*), and the look became fixed. It was thought to be an hysterical fit, but the respiration became less and less, the pulse was no longer perceptible, and, in spite of all the ordinary stimuli, death took place within three minutes after the injection. Autopsy twenty-four hours after death. No trace of putrefaction; the uterus somewhat larger than the fist; no sign of inflammation in its walls; its cavity still contained a portion of placenta of the size of a small hen's egg; the inferior cava was

distended, and contained many large bubbles of gas distinctly visible through its walls; the right cavities of the heart were distended and elastic. After tying the vessels, the organ was opened under water, and a large quantity of gas mingled with blood escaped. The left cavities also contained some bubbles. In this case we cannot doubt that the gas found in the heart and vessels made its entrance at the time of the injection, and produced the fatal result. Whether the gas was the result of decomposition of the placenta, or was atmospheric air admitted from without, the effects would be the same, as proved by the experience of Nysten (*op. cit.*); but if it had been the former, fewer traces of it would probably have been discovered after death, on account of the great solubility of those gases in the blood.

Prof. Simpson relates an instance stated to him by an Irish practitioner. This gentleman was blowing common air into the os uteri for the purpose of procuring uterine contractions, when his patient suddenly fell back and expired, no bad symptoms having been previously observed. There was only very slight hemorrhage. We give this on the authority of Dr. A. D. Sinclair, of Boston.

Prof. Dalton relates another case (*Am. Med. Monthly*, June, 1860, p. 519), first reported by Dr. John Swinburne, of Albany. A female abortionist attempted to procure delivery at the fifth month by rupturing the membranes with a gutta-percha catheter, and the patient fell back, as the woman supposed, in a fainting fit; a physician was sent for, but before he arrived the patient was dead. Autopsy, in the month of March, fourteen hours after death. Air was found in the sinuses of the uterus, the jugular veins, and even in the superficial veins of the body. The right cavities of the heart were distended with a spumous mixture of blood and air. The uterus contained a healthy fœtus; the membranes were unbroken, but were separated from the uterine walls on the right side, together with a portion of the placenta, and there was a perforation at this spot leading directly into the uterine sinuses. Prof. Dalton coincides with Dr. S. in the opinion that air was forcibly blown in, through the catheter, with the intention of producing separation of the membranes. If this was the case, the way in which it entered the veins is sufficiently obvious.

The last case we have to record is the one which led us to examine the subject. It occurred under the observation of Dr. Homer O. Hitchcock, of Kalamazoo, Mich., and though not yet published, we are permitted by him to make use of the facts. An abortionist attempted to procure delivery of a woman four or five months pregnant, by perforating the membranes. He used a tube fourteen or fifteen inches long and about one-quarter inch diameter. Presently the husband, in the next room, heard his wife "screech," and a moment after the "doctor" opened the door and called for water, saying that the woman had fainted. The husband found her purple in the face, with the muscles of the chest and arms in contraction. Restoratives were tried

It is a fact that in the case of the patient, the air was not introduced into the system by the operation, but that it was introduced by the patient's own efforts in the bath, and the air was not introduced by the patient's own efforts in the bath.

The case is a very interesting one, and it is a fact that the patient was not introduced into the system by the operation, but that it was introduced by the patient's own efforts in the bath, and the air was not introduced by the patient's own efforts in the bath. The case is a very interesting one, and it is a fact that the patient was not introduced into the system by the operation, but that it was introduced by the patient's own efforts in the bath, and the air was not introduced by the patient's own efforts in the bath.

The case is a very interesting one, and it is a fact that the patient was not introduced into the system by the operation, but that it was introduced by the patient's own efforts in the bath, and the air was not introduced by the patient's own efforts in the bath. The case is a very interesting one, and it is a fact that the patient was not introduced into the system by the operation, but that it was introduced by the patient's own efforts in the bath, and the air was not introduced by the patient's own efforts in the bath.

(A careful report of this case, by Dr. Hitchcock, will be laid before the American Medical Association at its next meeting.)

Enough evidence has now been advanced of the liability to the entrance of air into the veins during certain operations in surgery, and under certain conditions of the uterine system, to put every practitioner on his guard against the circumstances which have been shown to be dangerous. Indeed, those most skeptical as to the cases cited admit the prudence of proper precautionary measures. But are there not other occasions, of more or less frequent occurrence, in which the possibility of danger is almost equally manifest as in some of these?

If death has been produced by the mere puncture of the seton needle in the neck, in the hands of a skilful operator, what shall we say of the danger in the operation of tracheotomy, now so frequently practised? Here we meet veins of at least equal calibre with those wounded in certain of the fatal cases, and which the most careful surgeon cannot always avoid. These veins lie on, or within, the borders of the region shown to be the most dangerous, and at the time of such operation are generally turgid with blood. What more is needed than the entrance of the scalpel at a certain angle, combined with traction of the tissues in a certain direction, to open the door to the entrance of the unwelcome visitor? Yet we are instructed by surgeons, if a vein is wounded, to complete the operation as soon as possible, without reference to bleeding, as its completion will at once relieve the loaded vessels and check the hemorrhage; while no word of warning is uttered concerning the possibility of this fatal complication.

Even the simple insertion of a subcutaneous syringe may be conceived to carry with it possible danger. These instruments are liable to take up and eject as much air as water, as we know from experience. The improved syringes of glass show its presence, while those in ordinary use, made of gutta-percha, conceal it.

The dangers to be guarded against in those more rare but very important operations, the transfusion of blood in anæmia, and the injection of water impregnated with salts, in cases of cholera, cannot fail to suggest themselves here. Indeed, there is a statement by the late Dr. Francis, of N. Y. (*Med. Magazine*, Nov. 1832), that in the few autopsies of bodies after venous injection, during the cholera epidemic, great cerebral congestion was found, and air within the heart, aorta, and larger bloodvessels. Allusion was made at the same time to the horrors of death after this operation, but we find no account of symptoms. (See also Experiments on the Transf. of Blood, by Dr. Jas. Blundell, *Medico-Chirurg. Trans.*, ix. p. 65.)

We have quoted cases of the introduction of air into the bloodvessels by means of suicidal wounds; but neither Guthrie nor any other of the great authorities in military surgery have noted this as a complication of wounds received on the battle-field. One allusion of this sort we do find. It is stated by Sir Charles Bell (*Practical Essays*, Part I.) that Baron Larrey, while examining with him some sketches of the wounded at the battle of Waterloo, noticed particularly the case of a young man who had been wounded in the lower part of the neck. "Well I know," said this excellent surgeon, "how that young man must have died. I have seen so many wounded during my campaigns, and die from air drawn into the veins." In sabre wounds about the dangerous region we should suppose this accident might be of frequent occurrence; less so in gunshot wounds, where retraction is more likely to close the mouths of the vessels; yet even here it is easy to conceive that in many cases they may remain patulous until closed by coagula. This is a subject which well deserves investigation, and

the opportunities afforded by the present war to settle it should not be overlooked. The difficulty of making sufficiently careful autopsies near the battle-field, where, if at all, these accidents must take place, is an objection which might be obviated by the detailing of a surgeon for that especial purpose.

We come now to consider certain possibilities more important even than those just noticed: more important because they come within the range of every physician's daily practice. We have seen that the injection of gas or liquids into the uterine cavity is attended with danger; yet we have no doubt that both agents are still used for procuring uterine contractions, for the relief of pain, or as disinfectants, without the slightest precaution.

It is not long since Prof. Simpson has discontinued and discouraged the actual injection of carbonic acid gas into the os uteri (*Edinburgh Med. Journ.*, Sept. 1861, and *American Journ. Med. Sci.*, Jan. 1862, p. 271.) Two instances of sudden death during such injection are reported by Scanzoni. The one of which we have read the particulars (*Brit. and For. Med.-Chir. Rev.*, vol. xxiv. p. 274: seems to us to point very clearly towards entrance of the gas into the veins as the cause of death.

Mr. James, of the City Lying-in Hospital, London, passes an elastic catheter through the os, between the uterine walls and the membranes, to the extent of four or five inches, and injects cold water by means of an elastic bottle. (Simpson, *loc. cit.*) We can hardly conceive of a more dangerous practice, at least in the hands of those unaccustomed to it, when we remember the ease with which a vein might be punctured and air admitted with the water, to say nothing of the injurious effects of water itself in the circulation. Prof. Simpson himself was greatly alarmed, on one occasion, at seeing a patient faint under the use of Higginson's syringe, an effect which, he suggests, was probably due to some of the fluid (perhaps air) getting into the circulation. Dr. Robt. Barnes (*Obstet. Trans.* 1861, p. 119) states that several cases are known in which death has speedily followed the injection of fluid into the non-pregnant uterus, and says that unless great care is taken, air is very apt to be thrown up with the water by any of the ordinary siphons or pumping syringes. He refers to a case reported by Dr. Guillier (*Gaz. Méd.*, 1857), in which injections of water being ordered to cleanse the vagina of a woman wearing a pessary, water mingled with air was thrown into the uterus and forced through the Fallopian tubes into the peritoneal cavity, adding that it may be conjectured that air also found its way into the bloodvessels. Dr. H. R. Storer, of Boston, goes still farther and condemns—as we think very justly—the use of Keiler's caoutchouc air pessaries, on the same ground. In an able paper recently read by him before the Suffolk District Medical Society on artificial dilatation of the cervix uteri (*Boston Medical and Surgical Journal*, July 3, 1863), he states that several cases of death from the use of these means have occurred, and names the entrance of air into the vascular system as the



most probable explanation of this fatality. Dr. Storer informs us that he has always opposed the use of any of the means by which this class of accidents is rendered possible, and he considers it one of the chief merits of his method of dilatation, that it places the occurrence of danger from this source out of the question.

If it is urged that accident under such circumstances as we have alleged must be so rare as not to deserve notice, since scarcely any are recorded, we point in answer to the fact that 50 years ago the possibility of accident from this cause under *any* circumstances was not even suspected, while the first instance of the kind, occurring after parturition in the human species, was not noticed until several years after Legallois and Ollivier had suggested its possibility. If we are forewarned of the danger, it may serve not only to bring to light proofs of its reality which would otherwise have slept, but to preserve valuable lives which would otherwise be sacrificed; and it should be remembered that a single accident must weigh more in the affirmative than scores, or even hundreds, of fortunate cases could do in the negative.

Before proceeding to consider the mechanical conditions favouring the accident, and its proximate cause, some mention should be made of a class of cases very analogous to the preceding, viz., those in which gas seems to be developed within the vessels instead of admitted from without. In fact, there appears to be a regular gradation of instances, from such as are evidently wholly physiological to such as are as clearly due to the operation of physical laws; so that the two classes merge into each other, and it is difficult to decide to which some of the cases belong. Thus, the fact of the secretion of gas by the mucous lining of the stomach and intestines is too common to require comment. Instances are reported on good authority where the skin and bladder have exhibited the same phenomena. Sir Francis Smith witnessed an instance of this sort, in a hypochondriac patient, where the water of the bath in which he lay became covered with bubbles, which proceeded from the surface of his body. (*Dub. Journ. of Med. Sciences*, 1841, p. 454.) Prof. Puchelt thinks that in certain persons bubbles of air not unfrequently form and explode within the current of the circulation itself, and is familiar with one kind of palpitation, which gives the precise idea of bubbles bursting in the heart. (JONES and SIEVEKING, *Path. Anat.*, p. 364.) A step further brings us to those cases wherein sudden death has occurred, and where careful dissection, frequently made so early after death as to leave no room for changes of decomposition, has brought to light nothing but the presence of air in the heart and veins to explain the event. Cases of this sort are mentioned by Morgagni (*op. cit.*, secs. 20, 24) as having been remarked by Verdriesius, Grætzius, Ruysch, and himself; and the death of Albrechtus, Prof. of Anatomy at Gottingen, is cited as being of the same kind. Dr. Cless, of Stuttgart, has published 14 cases, in most of which the patients were suffering from blood-poisoning.


(G. May, *Trans. of Path. Soc. of London*, vol. ix. p. 154.) Air is said to have been found in the veins, after death from strychnia poisoning, from hydrophobia, and from inhalation of chloroform. (*Id.*) Mr. May reports several cases. In one, the patient being taken ill, the median vein was opened and much frothy blood escaped; sudden death occurred, and air was found in the heart. In another, there was ulceration of the cæcum, and air was found in the veins, from the ulcer to the heart. A third occurred during the catamenial period, and air was traced from the left lateral ligament of the uterus to the heart. In a case of gangrene of the great toe, air was found from the seat of the lesion to the heart. In a 5th case, the patient recovered from two attacks of sudden cough, followed by insensibility, lividity, coldness of extremities, rapid pulse and respiration, ending with the expectoration of much frothy mucus tinged with blood, and the third attack proving fatal, the autopsy disclosed air in the pulmonary vessels and frothy blood in the cavities and vessels of the heart. In all these cases the autopsy was performed within 30 hours after death, and there was no evidence of decomposition.

It is impossible not to associate this class of cases with that immediately under discussion; and we must admit the possibility of some peculiar and unfrequent condition of the system, which predisposes to the reception of the noxious agent, or to the more rapid development of fatal effects. This of course is mere conjecture, but if we admit its possibility, it will help to explain the supposed rareness of the accident, compared with the frequency of the occasions in which the mechanical conditions favouring it are presented. In those cases where gas is unquestionably developed within the vessels, it would be useful to investigate its exact composition, and thus determine whether it is generated by decomposition of the blood, or merely set free from solution in that fluid. Prof. Bacon informs us that investigations have yet to be made to decide this question, and that the necessary experiments and analyses, though complicated, would be entirely practicable.

If the gas is really set free from solution, it is probably in consequence of some change in the blood, as incompatible with life as actual putrefactive change; for though it is demonstrated by the experiments of Bischoff, Magnus, J. Davy, and others, that a large percentage of free carbonic acid and oxygen gas both exist in healthy blood (Carpenter's *Prin. Human Physiol.*, p. 1598, and Lehmann's *Physiol. Chemistry*, vol. i. p. 570, and vol. ii. p. 474), yet it is unlikely that either of these could be liberated from solution, and thus cause death mechanically, without some essential change in the vital properties of that fluid which would render it incapable of fulfilling its part in the economy. Yet the mechanical cause may, nevertheless, and probably does, have its share in the fatal issue, and perhaps controls the character of the symptoms.

The mechanical conditions under which air has obtained entrance into

the circulation during surgical operations have been pretty thoroughly canvassed. It was shown by Messrs. Barry and Poisseuille that a marked influence was exerted on the current of blood, in certain of the larger veins at the summit of the thorax, by the movements of the chest in respiration, its flow being accelerated during inspiration, and checked, and to a certain degree reversed, during expiration, producing the phenomenon of a venous pulse in that region. This was shown to be due to a sucking action, exerted upon the venous current by the expanding chest. Within this region, the *espace dangereuse* of Amussat, including the lower portion of the internal jugular, the subclavian, and the upper half of the axillary, the opening of a vein was shown to be always followed by the admission of air. It was noticed by M. Bonillaud that when the movements of respiration became feeble, the flux and reflux in the veins no longer corresponded to the movements of the thorax, but became synchronous with the beat of the heart; and we have noticed this change in the frequency of the venous pulse, in the exposed jugular vein of a cat, before any vessel had been punctured. It corresponds entirely to the circumstance already noticed in connection with the lapping sound produced by the entrance of air at a wound. M. Bérard demonstrated by careful dissection, that those portions of veins, subject to flux and reflux, were united to neighbouring bones and muscles by aponeurotic laminae or bridles which kept them expanded, while elsewhere nothing hindered their natural tendency to collapse from atmospheric pressure when not distended by blood. (Velpeau, *op. cit.*, p. 453.) Velpeau and others denied the possibility of the accident beyond the range of the venous pulse, but it has been sufficiently demonstrated by various observers, as well as by the experiments of the commission, that many circumstances may and do operate to extend the area of danger, so as to include smaller veins, as well as those at a greater distance from the heart, and the limits of the danger have not yet been definitely fixed. Any circumstance which prevents the collapse of the vessel under the pressure of the atmosphere invites the entrance of air. Among these conditions are a forced inspiration, during which the platysma, sterno-cleido-mastoid and anterior portion of the trapezoid muscles are lifted off the veins which underlie them, thus allowing them to dilate (Sir C. BELL, *Practical Essays*, p. 17); dragging and forcible distension of a vein during an operation, either by the necessary position of the patient, as in a case of Dr. Warren, or by manipulation of the parts while dissecting, as in the cases of Dupuytren and Roux; adhesion of the vein to morbid growths; and thickening of its coats from chronic inflammation. Something depends on the position of the patient, whether erect or recumbent, the former being more favourable to the occurrence of the accident from the comparative emptiness of the veins about the neck, thus placed above the horizontal plane of the heart. The character of the incision into the vein also has an important bearing on the chances of accident. Thus, if a portion of its wall is re-



moved, yet not enough to prevent the onward flow of blood within it towards the heart, air is likely to be drawn with it into the circulation; if the vein is partially divided transversely at the bottom of a wound, the drawing apart of the flaps may furnish an opening sufficiently large, while complete division transversely would favour immediate collapse and retraction if the veins were not canalized in any of the ways before mentioned. A fact stated by Sir Charles Bell helps to explain the ready entrance of air into a vein through which the current of blood continues to flow. "When water flows through a tube, the tube being gradually larger at its further extremity, and a lesser tube inserted into it, water will not flow from the larger tube into the smaller, but from the smaller into the larger. This corresponds with the course of the blood in the veins; for the lesser veins are inserted into a series of trunks, gradually enlarging in their diameters till they reach the heart. In these circumstances, a hole in the side of the tube will not discharge water, but will admit air." (*Op. cit.*)

The conditions by which air enters by the uterine veins have been less carefully studied. Prof. Simpson says (REID, *op. cit.*, p. 580), "As to the mechanism of the introduction of air in such cases, I think we can understand it, when we remember that the interior of the uterus after delivery, especially opposite the late seat of the placenta, is studded with venous orifices, and that, if air does once become introduced into the uterine cavity, from relaxation of the walls of the organ, it will be liable to be forced into these orifices, and hence into the general venous circulation; provided the uterus, in again contracting, is unable to expel its contents through the os uteri." Dr. McClintock refers to the large size of the veins of the gravid womb, their freedom from inosculation, the total absence of valves, and their termination on the internal surface of the uterus, at the site of the placenta, by large open orifices. "If the uterus," he remarks, "be examined soon after delivery at full term, the majority of these apertures will readily admit a goose-quill, and some will even allow the little finger to penetrate without laceration. During contraction of the uterus, all the openings are hermetically closed; but when it is relaxed, they again become proportionably more or less patulous. From this it is manifest, that the same condition of the organ which causes flooding, is exactly that which is indispensable for the ingress of air; so that the latter, when it does take place, is almost of necessity preceded, or accompanied, by hemorrhage. (CHURCHILL'S *Midwifery*, p. 529.) This is far too sweeping a statement. It evidently contemplates the possibility of the accident only as a sequence of parturition; yet even here we can readily conceive of the possibility of air obtaining entrance into the uterine veins during the progress of the normal contractions, when little or no blood need escape. Indeed, we must conclude with Simpson, that it is by means of these very contractions that, in many cases, air is driven into the vessels. Facts corroborate this view; for we see by the cases reported, that hemorrhage is

by no means a constant accompaniment of the accident, and that where it has occurred, it has apparently been far from profuse. This coincides with the remark of Wattman, and with the experience of the commission, that want of bleeding from the opened vein is a prominent sign of the accident. To the question, How comes the air into the uterine cavity? Dr. Churchill answers: "It may penetrate, doubtless, during the process of expulsion of the child, or during the interval before the expulsion of the placenta, or it may be the result of decomposition. That air is expelled from the uterus occasionally, during or immediately after labour, we know; so that we may conclude with Dr. Cormack: 'I have not only no difficulty in believing, but am constrained to admit, that should any impediment be offered, in such cases, to the free exit of air by the os uteri, it must be forced into the uterine veins, were their mouths not protected by coagula.'" (*Id.*) M. Amussat thinks that the phenomena of the introduction of air into the uterine veins may be explained by the same mechanism as for the dangerous region, *i. e.*, by the respiratory movements which are transmitted even to the uterus by the flux and reflux of the intestines; and hence if the uterus does not contract, and if the vessels of its walls remain patulous, we can conceive that aspiration of air may take place as at the neck, though doubtless less easily. (*Op. cit.*, p. 245.)

The proximate cause of death has been a subject of much controversy, and it has not yet been explained beyond a doubt. Morgagni states, and appears to accept, the opinion of most of the earlier physiologists, that death occurs from the great distension of the walls of the heart, which was likened to over-distension of the bladder with urine; though he suggests the possibility of apoplexy, in some cases, from the effect of air in the vessels of the brain. (*Op. cit.*, secs. 23, 24.) Bichat also believes that the air becomes mortal on arriving at the brain, but how it operates upon this organ to produce death, he considers not worth investigating. "*Qu'importe le comment?*" he asks, "*le fait seul nous interesse.*" (*Op. cit.*) Nysten reasserted the opinion of the earlier experimenters, that death, in the rapidly fatal cases, was due to over-distension of the right cavities of the heart, which he believed occasioned such a dragging of the fibres of the left ventricle as to oppose the free exercise of its contractility; though, in those cases where the fatal issue was delayed, he acknowledged that its cause was in the lungs. (*Op. cit.*, p. 166.) Magendie, Dupuytren, and others accepted this view. (MERCIER, *Gaz. Méd.*, 1837, p. 485.) MM. Piedagnel and Leroy thought that the air forced into the lungs by the contractions of the right ventricle, and suddenly expanded by the change of temperature, ruptured the pulmonary capillaries, and produced emphysema, and thus stoppage of the circulation. (MERCIER, *op. cit.*, 1837, p. 484.) M. Ollivier accepted this theory as probable in the more prolonged cases, but preferred that of Nysten for the instances where death was sudden, suggesting the probable rarefaction of air in the heart as the occasion of

spleen, crepitated on pressure. The viscera were pale and flaccid. Air or frothy blood was found in the right cavities of the heart, beneath the visceral layer of the pericardium, in the vessels of the liver and kidneys, the internal spermatic vein, and vena cava. The latter gave a tympanitic resonance on percussion. The disease proved to be villous cancer.

These eleven cases are all that we have been able to collect in which death was attributed to the spontaneous entrance of air through the uterine veins. Some of these are too meagre in detail to admit of an opinion being formed upon them; while in one or two it seems possible that the gas found in the vessels was developed there by morbid changes, but in other cases the evidence is strong in favour of the cause assigned, and when taken as a whole we think little doubt can be entertained as to the nature of the accident. The chief obstacle to full belief, in many cases, is the failure of the observers to state the precise condition of the body, as to post-mortem changes, and what precautions, if any, were taken to prevent the admission of air during the autopsy. But when we remember that the gentlemen who reported them were generally men of experience and eminent in the profession, and that the presence of air was suspected beforehand, we cannot doubt that, at least, ordinary precautions were taken against fallacy. It will be asked whether air may not be oftener present in the heart after death than is generally supposed, but only noticed when specially sought for. To this it may be answered that Dr. Cless, of Stuttgart, examined 1200 bodies after death from various diseases, with especial reference to this possibility, and only found air in fourteen cases, and those where the previous symptoms had led to the suspicion that air was present. (*Trans. of Path. Soc. of London*, vol. ix. p. 154.)

We now come to another class of cases, where the addition of another link in the chain of evidence renders it nearly or quite conclusive as to the cause of death. Among these we place the case of M. Bessems. It was one of adherent placenta in a hospital patient. Uterine injections of chlorinated water were being used, and previous to each injection small portions of the placenta had been torn away; the patient was weakened by loss of blood. It is stated that special care was taken to exclude bubbles of air from the syringe. On injecting the fluid for the third time, the woman immediately sprang up in bed (*se projette sur son séant*) and stretched out her arms, crying that she was suffocating. The head then fell backwards, the face grew pale, the eyes rolled upwards spasmodically (*se convulsent en haut*), and the look became fixed. It was thought to be an hysterical fit, but the respiration became less and less, the pulse was no longer perceptible, and, in spite of all the ordinary stimuli, death took place within three minutes after the injection. Autopsy twenty-four hours after death. No trace of putrefaction; the uterus somewhat larger than the fist; no sign of inflammation in its walls; its cavity still contained a portion of placenta of the size of a small hen's egg; the inferior cava was

distended, and contained many large bubbles of gas distinctly visible through its walls; the right cavities of the heart were distended and elastic. After tying the vessels, the organ was opened under water, and a large quantity of gas mingled with blood escaped. The left cavities also contained some bubbles. In this case we cannot doubt that the gas found in the heart and vessels made its entrance at the time of the injection, and produced the fatal result. Whether the gas was the result of decomposition of the placenta, or was atmospheric air admitted from without, the effects would be the same, as proved by the experience of Nysten (*op. cit.*); but if it had been the former, fewer traces of it would probably have been discovered after death, on account of the great solubility of those gases in the blood.

Prof. Simpson relates an instance stated to him by an Irish practitioner. This gentleman was blowing common air into the os uteri for the purpose of procuring uterine contractions, when his patient suddenly fell back and expired, no bad symptoms having been previously observed. There was only very slight hemorrhage. We give this on the authority of Dr. A. D. Sinclair, of Boston.

Prof. Dalton relates another case (*Am. Med. Monthly*, June, 1860, p. 519), first reported by Dr. John Swinburne, of Albany. A female abortionist attempted to procure delivery at the fifth month by rupturing the membranes with a gutta-percha catheter, and the patient fell back, as the woman supposed, in a fainting fit; a physician was sent for, but before he arrived the patient was dead. Autopsy, in the month of March, fourteen hours after death. Air was found in the sinuses of the uterus, the jugular veins, and even in the superficial veins of the body. The right cavities of the heart were distended with a spumous mixture of blood and air. The uterus contained a healthy fetus; the membranes were unbroken, but were separated from the uterine walls on the right side, together with a portion of the placenta, and there was a perforation at this spot leading directly into the uterine sinuses. Prof. Dalton coincides with Dr. S. in the opinion that air was forcibly blown in, through the catheter, with the intention of producing separation of the membranes. If this was the case, the way in which it entered the veins is sufficiently obvious.

The last case we have to record is the one which led us to examine the subject. It occurred under the observation of Dr. Homer O. Hitchcock, of Kalamazoo, Mich., and though not yet published, we are permitted by him to make use of the facts. An abortionist attempted to procure delivery of a woman four or five months pregnant, by perforating the membranes. He used a tube fourteen or fifteen inches long and about one-quarter inch diameter. Presently the husband, in the next room, heard his wife "screech," and a moment after the "doctor" opened the door and called for water, saying that the woman had fainted. The husband found her purple in the face, with the muscles of the chest and arms in contraction. Restoratives were tried

to no purpose; she was dead in less than ten minutes. The man told the husband that the instrument did not hurt her until just as he was about to draw it out, when he blew in it, and she instantly struck at him with her hands, screamed out, and became blue in the face.

Viewed in connection with the facts and cases already considered, it would seem as if there could be no possible doubt as to the nature of the accident, even without the corroborative proof of a post-mortem examination; yet the physicians who conducted the autopsy had no suspicion of the presence of air in the vessels, and only examined the abdominal cavity and the uterus; while, if we mistake not, eminent surgical and pathological authority in this vicinity, on hearing the facts stated, expressed skepticism as to the agency of air in producing the result. Yet no less authority than Prof. Syme testified at the inquest in Dr. Willis's case, where death followed the puncture of a seton needle, that an autopsy was not necessary to render certain the manner in which death was produced, and that it was only demanded by the interests of science. These gentlemen could not have been acquainted with the literature of the subject when expressing such an opinion. It only serves to illustrate the singular obscurity which veils the subject in this country, and the need there is that attention should be called towards it.

To return to the case under consideration. At the autopsy there was found to be slight but general peritonitis. (We have no account of the previous health of the patient.) The uterus contained a fœtus of from four and a half to five months, with membranes intact. No marks of mechanical injury were noticed. The placenta was easily to be broken down, and there were two small clots beneath it. No signs of hemorrhage were found in the vagina nor about the clothes nor bed. Dr. Hitchcock, hearing the husband's testimony, formed the opinion that she died from forcible entrance of air into the circulation, through the uterine sinuses. His opinion being made known, the body was disinterred and re-examined five days after death. It was intended to tie all the vessels and open the heart under water; but one of the ligatures slipped off when the vessel was cut, and a puff of air was heard by all present. There was engorgement, probably cadaveric, of the large viscera.

(A careful report of this case, by Dr. Hitchcock, will be laid before the American Medical Association at its next meeting.)

Enough evidence has now been advanced of the liability to the entrance of air into the veins during certain operations in surgery, and under certain conditions of the uterine system, to put every practitioner on his guard against the circumstances which have been shown to be dangerous. Indeed, those most skeptical as to the cases cited admit the prudence of proper precautionary measures. But are there not other occasions, of more or less frequent occurrence, in which the possibility of danger is almost equally manifest as in some of these?



If death has been produced by the mere puncture of the seton needle in the neck, in the hands of a skilful operator, what shall we say of the danger in the operation of tracheotomy, now so frequently practised? Here we meet veins of at least equal calibre with those wounded in certain of the fatal cases, and which the most careful surgeon cannot always avoid. These veins lie on, or within, the borders of the region shown to be the most dangerous, and at the time of such operation are generally turgid with blood. What more is needed than the entrance of the scalpel at a certain angle, combined with traction of the tissues in a certain direction, to open the door to the entrance of the unwelcome visitor? Yet we are instructed by surgeons, if a vein is wounded, to complete the operation as soon as possible, without reference to bleeding, as its completion will at once relieve the loaded vessels and check the hemorrhage; while no word of warning is uttered concerning the possibility of this fatal complication.

Even the simple insertion of a subcutaneous syringe may be conceived to carry with it possible danger. These instruments are liable to take up and eject as much air as water, as we know from experience. The improved syringes of glass show its presence, while those in ordinary use, made of gutta-percha, conceal it.

The dangers to be guarded against in those more rare but very important operations, the transfusion of blood in anæmia, and the injection of water impregnated with salts, in cases of cholera, cannot fail to suggest themselves here. Indeed, there is a statement by the late Dr. Francis, of N. Y. (*Med. Magazine*, Nov. 1832), that in the few autopsies of bodies after venous injection, during the cholera epidemic, great cerebral congestion was found, and air within the heart, aorta, and larger bloodvessels. Allusion was made at the same time to the horrors of death after this operation, but we find no account of symptoms. (See also *Experiments on the Transf. of Blood*, by Dr. Jas. Blundell, *Medico-Chirurg. Trans.*, ix. p. 65.)

We have quoted cases of the introduction of air into the bloodvessels by means of suicidal wounds; but neither Guthrie nor any other of the great authorities in military surgery have noted this as a complication of wounds received on the battle-field. One allusion of this sort we do find. It is stated by Sir Charles Bell (*Practical Essays*, Part I.) that Baron Larrey, while examining with him some sketches of the wounded at the battle of Waterloo, noticed particularly the case of a young man who had been wounded in the lower part of the neck. "Well I know," said this excellent surgeon, "how that young man must have died. I have seen so many wounded during my campaigns, and die from air drawn into the veins." In sabre wounds about the dangerous region we should suppose this accident might be of frequent occurrence; less so in gunshot wounds, where retraction is more likely to close the mouths of the vessels; yet even here it is easy to conceive that in many cases they may remain patulous until closed by coagula. This is a subject which well deserves investigation, and

the opportunities afforded by the present war to settle it should not be overlooked. The difficulty of making sufficiently careful autopsies near the battle-field, where, if at all, these accidents must take place, is an objection which might be obviated by the detailing of a surgeon for that especial purpose.

We come now to consider certain possibilities more important even than those just recited; more important because they come within the range of every physician's daily practice. We have seen that the injection of gas or liquids into the uterine cavity is attended with danger; yet we have no doubt that both agents are still used for procuring uterine contractions, for the relief of pain, or as disinfectants, without the slightest precaution.

It is not long since Prof. Simpson has discontinued and discouraged the actual injection of carbonic acid gas into the os uteri. (*Edinburgh Med. Journ.*, Sept. 1861, and *American Journ. Med. Sci.*, Jan. 1862, p. 271.) Two instances of sudden death during such injection are reported by Scanzoni. The one of which we have read the particulars (*Brit. and For. Med.-Chir. Rev.*, vol. xxiv. p. 274) seems to us to point very clearly towards entrance of the gas into the veins as the cause of death.

Mr. James, of the City Lying-in Hospital, London, passes an elastic catheter through the os, between the uterine walls and the membranes, to the extent of four or five inches, and injects cold water by means of an elastic bottle. (Simpson, *loc. cit.*) We can hardly conceive of a more dangerous practice, at least in the hands of those unaccustomed to it, when we remember the ease with which a vein might be punctured and air admitted with the water, to say nothing of the injurious effects of water itself in the circulation. Prof. Simpson himself was greatly alarmed, on one occasion, at seeing a patient faint under the use of Higginson's syringe, an effect which, he suggests, was probably due to some of the fluid (perhaps air) getting into the circulation. Dr. Robt. Barnes (*Obstet. Trans.* 1861, p. 119) states that several cases are known in which death has speedily followed the injection of fluid into the non-pregnant uterus, and says that unless great care is taken, air is very apt to be thrown up with the water by any of the ordinary siphons or pumping syringes. He refers to a case reported by Dr. Guillier (*Gaz. Méd.*, 1857), in which injections of water being ordered to cleanse the vagina of a woman wearing a pessary, water mingled with air was thrown into the uterus and forced through the Fallopian tubes into the peritoneal cavity, adding that it may be conjectured that air also found its way into the bloodvessels. Dr. H. R. Storer, of Boston, goes still farther and condemns—as we think very justly—the use of Keiler's caoutchouc air pessaries, on the same ground. In an able paper recently read by him before the Suffolk District Medical Society on artificial dilatation of the cervix uteri (*Boston Medical and Surgical Journal*, July 3, 1863), he states that several cases of death from the use of these means have occurred, and names the entrance of air into the vascular system as the

most probable explanation of this fatality. Dr. Storer informs us that he has always opposed the use of any of the means by which this class of accidents is rendered possible, and he considers it one of the chief merits of his method of dilatation, that it places the occurrence of danger from this source out of the question.

If it is urged that accident under such circumstances as we have alleged must be so rare as not to deserve notice, since scarcely any are recorded, we point in answer to the fact that 50 years ago the possibility of accident from this cause under *any* circumstances was not even suspected, while the first instance of the kind, occurring after parturition in the human species, was not noticed until several years after Legallois and Ollivier had suggested its possibility. If we are forewarned of the danger, it may serve not only to bring to light proofs of its reality which would otherwise have slept, but to preserve valuable lives which would otherwise be sacrificed; and it should be remembered that a single accident must weigh more in the affirmative than scores, or even hundreds, of fortunate cases could do in the negative.

Before proceeding to consider the mechanical conditions favouring the accident, and its proximate cause, some mention should be made of a class of cases very analogous to the preceding, viz., those in which gas seems to be developed within the vessels instead of admitted from without. In fact, there appears to be a regular gradation of instances, from such as are evidently wholly physiological to such as are as clearly due to the operation of physical laws; so that the two classes merge into each other, and it is difficult to decide to which some of the cases belong. Thus, the fact of the secretion of gas by the mucous lining of the stomach and intestines is too common to require comment. Instances are reported on good authority where the skin and bladder have exhibited the same phenomena. Sir Francis Smith witnessed an instance of this sort, in a hypochondriac patient, where the water of the bath in which he lay became covered with bubbles, which proceeded from the surface of his body. (*Dub. Journ. of Med. Sciences*, 1841, p. 454.) Prof. Puchelt thinks that in certain persons bubbles of air not unfrequently form and explode within the current of the circulation itself, and is familiar with one kind of palpitation, which gives the precise idea of bubbles bursting in the heart. (JONES and SIEVEKING, *Path. Anat.*, p. 364.) A step further brings us to those cases wherein sudden death has occurred, and where careful dissection, frequently made so early after death as to leave no room for changes of decomposition, has brought to light nothing but the presence of air in the heart and veins to explain the event. Cases of this sort are mentioned by Morgagni (*op. cit.*, secs. 20, 24) as having been remarked by Verdriesius, Grætzius, Ruysch, and himself; and the death of Albrechtus, Prof. of Anatomy at Gottingen, is cited as being of the same kind. Dr. Cless, of Stuttgart, has published 14 cases, in most of which the patients were suffering from blood-poisoning.

(G. May, *Trans. of Path. Soc. of London*, vol. ix. p. 154.) Air is said to have been found in the veins, after death from strychnia poisoning, from hydrophobia, and from inhalation of chloroform. (*Id.*) Mr. May reports several cases. In one, the patient being taken ill, the median vein was opened and much frothy blood escaped; sudden death occurred, and air was found in the heart. In another, there was ulceration of the cæcum, and air was found in the veins, from the ulcer to the heart. A third occurred during the catamenial period, and air was traced from the left lateral ligament of the uterus to the heart. In a case of gangrene of the great toe, air was found from the seat of the lesion to the heart. In a 5th case, the patient recovered from two attacks of sudden cough, followed by insensibility, lividity, coldness of extremities, rapid pulse and respiration, ending with the expectoration of much frothy mucus tinged with blood, and the third attack proving fatal, the autopsy disclosed air in the pulmonary vessels and frothy blood in the cavities and vessels of the heart. In all these cases the autopsy was performed within 30 hours after death, and there was no evidence of decomposition.

It is impossible not to associate this class of cases with that immediately under discussion; and we must admit the possibility of some peculiar and unfrequent condition of the system, which predisposes to the reception of the noxious agent, or to the more rapid development of fatal effects. This of course is mere conjecture, but if we admit its possibility, it will help to explain the supposed rareness of the accident, compared with the frequency of the occasions in which the mechanical conditions favouring it are presented. In those cases where gas is unquestionably developed within the vessels, it would be useful to investigate its exact composition, and thus determine whether it is generated by decomposition of the blood, or merely set free from solution in that fluid. Prof. Bacon informs us that investigations have yet to be made to decide this question, and that the necessary experiments and analyses, though complicated, would be entirely practicable.

If the gas is really set free from solution, it is probably in consequence of some change in the blood, as incompatible with life as actual putrefactive change; for though it is demonstrated by the experiments of Bischoff, Magnus, J. Davy, and others, that a large percentage of free carbonic acid and oxygen gas both exist in healthy blood (*Carpenter's Prin. Human Physiol.*, p. 1598, and *Lehmann's Physiol. Chemistry*, vol. i. p. 570, and vol. ii. p. 474), yet it is unlikely that either of these could be liberated from solution, and thus cause death mechanically, without some essential change in the vital properties of that fluid which would render it incapable of fulfilling its part in the economy. Yet the mechanical cause may, nevertheless, and probably does, have its share in the fatal issue, and perhaps controls the character of the symptoms.

The mechanical conditions under which air has obtained entrance into

the circulation during surgical operations have been pretty thoroughly canvassed. It was shown by Messrs. Barry and Poissenille that a marked influence was exerted on the current of blood, in certain of the larger veins at the summit of the thorax, by the movements of the chest in respiration, its flow being accelerated during inspiration, and checked, and to a certain degree reversed, during expiration, producing the phenomenon of a venous pulse in that region. This was shown to be due to a sucking action, exerted upon the venous current by the expanding chest. Within this region, the *espace dangereuse* of Amussat, including the lower portion of the internal jugular, the subclavian, and the upper half of the axillary, the opening of a vein was shown to be always followed by the admission of air. It was noticed by M. Bonillaud that when the movements of respiration became feeble, the flux and reflux in the veins no longer corresponded to the movements of the thorax, but became synchronous with the beat of the heart; and we have noticed this change in the frequency of the venous pulse, in the exposed jugular vein of a cat, before any vessel had been punctured. It corresponds entirely to the circumstance already noticed in connection with the lapping sound produced by the entrance of air at a wound. M. Bérard demonstrated by careful dissection, that those portions of veins, subject to flux and reflux, were united to neighbouring bones and muscles by aponeurotic laminæ or bridles which kept them expanded, while elsewhere nothing hindered their natural tendency to collapse from atmospheric pressure when not distended by blood. (Velpeau, *op. cit.*, p. 453.) Velpeau and others denied the possibility of the accident beyond the range of the venous pulse, but it has been sufficiently demonstrated by various observers, as well as by the experiments of the commission, that many circumstances may and do operate to extend the area of danger, so as to include smaller veins, as well as those at a greater distance from the heart, and the limits of the danger have not yet been definitely fixed. Any circumstance which prevents the collapse of the vessel under the pressure of the atmosphere invites the entrance of air. Among these conditions are a forced inspiration, during which the platysma, sterno-cleido-mastoid and anterior portion of the trapezoid muscles are lifted off the veins which underlie them, thus allowing them to dilate (Sir C. BELL, *Practical Essays*, p. 17); dragging and forcible distension of a vein during an operation, either by the necessary position of the patient, as in a case of Dr. Warren, or by manipulation of the parts while dissecting, as in the cases of Dupuytren and Roux; adhesion of the vein to morbid growths; and thickening of its coats from chronic inflammation. Something depends on the position of the patient, whether erect or recumbent, the former being more favourable to the occurrence of the accident from the comparative emptiness of the veins about the neck, thus placed above the horizontal plane of the heart. The character of the incision into the vein also has an important bearing on the chances of accident. Thus, if a portion of its wall is re-

moved, yet not enough to prevent the onward flow of blood within it towards the heart, air is likely to be drawn with it into the circulation; if the vein is partially divided transversely at the bottom of a wound, the drawing apart of the flaps may furnish an opening sufficiently large, while complete division transversely would favour immediate collapse and retraction if the veins were not canalized in any of the ways before mentioned. A fact stated by Sir Charles Bell helps to explain the ready entrance of air into a vein through which the current of blood continues to flow. "When water flows through a tube, the tube being gradually larger at its further extremity, and a lesser tube inserted into it, water will not flow from the larger tube into the smaller, but from the smaller into the larger. This corresponds with the course of the blood in the veins; for the lesser veins are inserted into a series of trunks, gradually enlarging in their diameters till they reach the heart. In these circumstances, a hole in the side of the tube will not discharge water, but will admit air." (*Op. cit.*)

The conditions by which air enters by the uterine veins have been less carefully studied. Prof. Simpson says (REID, *op. cit.*, p. 580), "As to the mechanism of the introduction of air in such cases, I think we can understand it, when we remember that the interior of the uterus after delivery, especially opposite the late seat of the placenta, is studded with venous orifices, and that, if air does once become introduced into the uterine cavity, from relaxation of the walls of the organ, it will be liable to be forced into these orifices, and hence into the general venous circulation; provided the uterus, in again contracting, is unable to expel its contents through the os uteri." Dr. McClintock refers to the large size of the veins of the gravid womb, their freedom from inosculation, the total absence of valves, and their termination on the internal surface of the uterus, at the site of the placenta, by large open orifices. "If the uterus," he remarks, "be examined soon after delivery at full term, the majority of these apertures will readily admit a goose-quill, and some will even allow the little finger to penetrate without laceration. During contraction of the uterus, all the openings are hermetically closed; but when it is relaxed, they again become proportionably more or less patulous. From this it is manifest, that the same condition of the organ which causes flooding, is exactly that which is indispensable for the ingress of air; so that the latter, when it does take place, is almost of necessity preceded, or accompanied, by hemorrhage. (CHURCHILL'S *Midwifery*, p. 529.) This is far too sweeping a statement. It evidently contemplates the possibility of the accident only as a sequence of parturition; yet even here we can readily conceive of the possibility of air obtaining entrance into the uterine veins during the progress of the normal contractions, when little or no blood need escape. Indeed, we must conclude with Simpson, that it is by means of these very contractions that, in many cases, air is driven into the vessels. Facts corroborate this view; for we see by the cases reported, that hemorrhage is

by no means a constant accompaniment of the accident, and that where it has occurred, it has apparently been far from profuse. This coincides with the remark of Wattman, and with the experience of the commission, that want of bleeding from the opened vein is a prominent sign of the accident. To the question, How comes the air into the uterine cavity? Dr. Churchill answers: "It may penetrate, doubtless, during the process of expulsion of the child, or during the interval before the expulsion of the placenta, or it may be the result of decomposition. That air is expelled from the uterus occasionally, during or immediately after labour, we know; so that we may conclude with Dr. Cormack: 'I have not only no difficulty in believing, but am constrained to admit, that should any impediment be offered, in such cases, to the free exit of air by the os uteri, it must be forced into the uterine veins, were their mouths not protected by coagula.'" (*Id.*) M. Amussat thinks that the phenomena of the introduction of air into the uterine veins may be explained by the same mechanism as for the dangerous region, *i. e.*, by the respiratory movements which are transmitted even to the uterus by the flux and reflux of the intestines; and hence if the uterus does not contract, and if the vessels of its walls remain patulous, we can conceive that aspiration of air may take place as at the neck, though doubtless less easily. (*Op. cit.*, p. 245.)

The proximate cause of death has been a subject of much controversy, and it has not yet been explained beyond a doubt. Morgagni states, and appears to accept, the opinion of most of the earlier physiologists, that death occurs from the great distension of the walls of the heart, which was likened to over-distension of the bladder with urine; though he suggests the possibility of apoplexy, in some cases, from the effect of air in the vessels of the brain. (*Op. cit.*, secs. 23, 24.) Bichat also believes that the air becomes mortal on arriving at the brain, but how it operates upon this organ to produce death, he considers not worth investigating. "*Qu'importe le comment?*" he asks, "*le fait seul nous interesse.*" (*Op. cit.*) Nysten reasserted the opinion of the earlier experimenters, that death, in the rapidly fatal cases, was due to over-distension of the right cavities of the heart, which he believed occasioned such a dragging of the fibres of the left ventricle as to oppose the free exercise of its contractility; though, in those cases where the fatal issue was delayed, he acknowledged that its cause was in the lungs. (*Op. cit.*, p. 166.) Magendie, Dupuytren, and others accepted this view. (MERCIER, *Gaz. Méd.*, 1837, p. 485.) MM. Piedagnel and Leroy thought that the air forced into the lungs by the contractions of the right ventricle, and suddenly expanded by the change of temperature, ruptured the pulmonary capillaries, and produced emphysema, and thus stoppage of the circulation. (MERCIER, *op. cit.*, 1837, p. 484.) M. Ollivier accepted this theory as probable in the more prolonged cases, but preferred that of Nysten for the instances where death was sudden, suggesting the probable rarefaction of air in the heart as the occasion of

over-distension. (*Op. cit.*, p. 71.) M. Amussat seems to have held a similar opinion. (*Op. cit.*, p. 240.) M. Marechal de Calvi thought that carbonic acid was disengaged from the blood by the oxygen of the air mixed with it, and that this operated as a poison upon the heart. (ERICHSEN, *op. cit.*, p. 4.)

M. Mercier names, 1st, stasis of the venous blood, from the inability of the heart to propel so elastic a fluid as air; 2d, interruption of the arterial circulation from the same cause, combined with the frothiness of the blood in the pulmonary capillaries; while, 3dly, the pressure of air in the arterial system may give the last blow to the organs already enfeebled by the privation of their natural excitant. (*Gaz. Méd.*, p. 1837, 485.)

M. Denot assigns as the cause, accumulation of air in the right cavities of the heart, consequent upon inability of the auriculo-ventricular valve to prevent the reflux of air from the ventricle into the auricle. (*Id.*, p. 728.) Sir Charles Bell believes that air interferes with the functions of animal life, by entering the vessels of the medulla oblongata. (*Op. cit.*) Dr. Wing asks: "Can we not suppose that the air impairs the power of circulation, 1st, by distending the heart with its own volume; and, 2dly, by causing an imperfect closure of the valves, and thus permitting a reflux of blood at each contraction of the ventricle, which causes, in its turn, an increased disturbance, until it goes beyond the power of reaction to overcome." (*Loc. cit.*)

Professor Wattman's theory is, progressive decrease in the activity of the heart, and of its influence upon the circulation, in consequence of the sudden over-distension of the venous system by the mixture of blood and air; the insufficient oxidation and decarbonization of the blood in the lungs, with simultaneous and equal decrease in, and impediment to, its electro-magnetic influence; the diminution of the exciting and nutritive qualities of the blood, and its consequent diminished capacity to maintain the function of those parts of the brain, spinal marrow, lungs, and heart, the united action of which are essential to life. (*Am. Journ. Med. Sci.*, vol. 9, N. S., p. 170.)

M. Bouillaud assigns a threefold cause. 1st. Distension of the right cavities of the heart, impeding its contractions. 2d. Spumous blood in the branches of the pulmonary artery preventing the free passage of blood through the lungs. 3d. Entrance of air into the vessels of the brain causing compression of that organ. (*Op. cit.*) Dr. Cormack attaches importance only to the first of these reasons, Reid to the first and second conjoined, while others, among whom are Poisseuille (*Gaz. Méd.*, 1837, p. 671), Erichsen (*op. cit.*, p. 15), Bernard (*Des Substances Toxiques et Médicamenteuses*, p. 163), and Dalton (*op. cit.*, p. 510), are content with the second of these alone.

We have thus gone over with the principal theories offered to account



for the fatality attending the accident. Our limits will not permit us to discuss them, though there is not one which does not seem open to objections more or less weighty. Those referring death to the presence of air in the brain or spinal cord, or to emphysema of the lungs, are disproved by the result of dissection in a large majority of cases.

Against the theory of poisoning from the elimination of carbonic acid, are adduced the experiments of Nysten, which show that the injection of that gas is even less injurious than air, being more readily soluble. (*Op. cit.*, p. 81.) Against the theories indicating obstruction at the heart, it is urged that that organ is often seen contracting after the respiration has ceased, and that it is by no means always found distended. (*Erichsen*, p. 10.) Finally, it is objected against the theory of obstruction of the lungs by frothy blood, that the sudden injection of an equal volume of water produced the same effect as air. (*Br. and For. Med. Rev.*, vol. xxv. p. 462.) While we believe that the disturbances produced in the economy by the presence of the foreign element are as complex as are the relations of interdependence between the different organs and functions of the body, and cannot be satisfactorily explained in the present imperfect state of our knowledge of these relations, we admit that the weight of evidence indicates that one of the chief troubles is the impediment offered to the passage of blood through the lungs. It should be remarked, however, that the symptoms produced may be all referred to disordered nerve influence, so that whatever mechanical conditions combine to strike the blow, or on whatever link or series of links of the vital chain it falls first or chiefest, it must be felt by the cerebral centres before any response becomes manifest.

We are now prepared to give an opinion on the practical question referred to at the beginning, viz., as to the nature and amount of evidence necessary to prove that a given case of death was due to this cause; and we reply, in general terms, that a sudden death taking place under any of the circumstances shown to be favourable to the occurrence of this accident, and not adequately and satisfactorily accounted for in any other way, affords strong presumptive evidence in favour of this as the cause; that if in addition the case presents certain of the prominent symptoms which we have remarked, such as violent disturbance of the respiratory and cardiac movements, great prostration, or convulsive spasms, and especially if the hissing sound indicating the entrance of air, or the churning sound, significant of its presence in the heart, is heard at the same time, the fact may be considered as established without the additional evidence of a post-mortem examination, which should nevertheless be always obtained, if possible, that the proof may be rendered unexceptionable, as well as for the scientific interest attaching to it. At the same time we cannot too strongly urge the importance of accurately noting the minutest details, as far as this can be done, without sparing every possible effort for the relief of the distressing symptoms. Above all, auscultation of the heart should never be omitted.

In conducting an autopsy in a suspected case, the length of time which had elapsed since death should be noticed, together with the temperature whether warm or cold, both of the body itself and of the atmosphere in which it had been kept, and the general condition of the body as to cadaveric changes. The calvarium should not be removed until after the heart is examined, and great care should be taken in opening the thorax not to wound any considerable vein. As a precaution against this, it would be better to saw the sternum through, than to disarticulate it from the clavicle. The contents of the heart, and of such of the larger vessels as give evidence of the presence of air, should be evacuated under water, notice being taken whether the air, if any issues, comes to the surface in a single wave, or in a multitude of minute bubbles. The former would indicate that the air was present, unmixed with blood; the latter that it was mixed with that fluid, forming a froth. We should not, however, with Prof. Dalton (*op. cit.*, p. 517), make this a decisive diagnostic sign, indicating whether the air gained entrance during life or not, unless the autopsy took place immediately after death, which, of course, it seldom can; for a short time might suffice for the froth to subside, and the air to be extricated entirely from the blood, which was doubtless mixed with it by the action of the heart. The gas might be readily collected in an inverted beaker, and measured approximately, and in a case admitting of doubt as to whether the gas was atmospheric air or not, the rough analysis resorted to by Roux would suffice. After collecting the gas, he decided that it was not ammonia because it was insoluble in water; it was not carbonic acid, for it gave no precipitate with lime-water; a lighted bougie plunged in it burned with the same activity as in the surrounding air, hence it was not nitrogen; neither was it oxygen, which would have given increased brilliancy to the flame, while hydrogen would have taken fire itself while extinguishing the taper. Thus, by the process of elimination he arrived at the conclusion that the gas found in the heart was atmospheric air. (MERCIER, *op. cit.*, p. 483.)

We now pass to a brief consideration of the remedial and preventive measures. As to the former the indications are—1st. To prevent further ingress of air. 2d. To remove, if possible, from the heart and lungs, that already admitted. 3d. To sustain the vital organs in the performance of their functions.

The first indication can be promptly met in surgical cases; indeed Wattman places almost his whole reliance on the prompt application of the necessary measures for this end, asserting that, if attended to when the first signs of the accident are manifest, a fatal termination can always be avoided. When the lapping sound is heard, or any symptom pointing to the entrance of air is noticed, instantly desist from the operation and press the point of the index finger upon the spot whence the sound proceeds. Finish the operation without removing the finger. If the hand is in the way, let the finger of another hand be placed upon the vein between

the wound and the heart, until the first finger is slid along the vein to the necessary distance. As soon as possible, permanent closure is to be obtained either by quickly uniting the lips of the wound, by ligature on the vein, by torsion, or by the lateral ligature, whichever of these methods seems most practicable, from the nature of the incision, the relation of the vessel to the surrounding parts, and its size and importance. The lateral ligature is claimed by Wattman as peculiar to himself, and we must refer the reader to his work, or to the reviews already quoted for an account of it. Its application is to large veins wounded through only a portion of their diameter, and it is intended to close the orifice without obliterating the calibre of the vessel. Ferguson thinks there would be danger of exciting inflammation in the vein by this method, and that simple closure of the wound with a little pressure would be preferable. (FERGUSON'S *Surgery*, p. 630.) The prompt application of compression has apparently been the means of saving life in many of the cases reported, among others in one of those of Dr. Warren, and in the late one of Dr. Clark; but, of course, it is inapplicable to cases where the uterus is the source of the accident, and it must be confessed that little can be done in those cases under the first indication. If a clot or other obstruction exist in the cervix uteri or vagina, it should be speedily removed.

Under the second indication, the most important measure is probably artificial respiration, which, by keeping up the action of the heart, may lead to the propulsion of the spumous blood through the pulmonary capillaries. Amussat and Blandin recommend suction by means of a tube passed through the wounded vein, or the right jugular, into the auricle, combining this with pressure on the chest. Magendie and Rouchoux advise suction alone, and Gerdy, simple compression. The objections to suction are the danger of admitting more air, and of injuring the inner walls of the vessels or heart, and we do not know that it has ever been practised. M. Amussat ascribed recovery in the case already mentioned reported by him, to pressure which he employed upon the chest, at the same time leaving the opening free. The patient should be so placed that the opening in the vessel shall be directed upwards, and be on a somewhat higher level than the heart. The pressure should be made to alternate with relaxation, and care should be taken during the intervals to close the orifice of the vein.

To meet the third indication artificial respiration is also required, together with the administration of brandy and diffusible stimulants. Various other measures of more or less value have been recommended; among these the recumbent position and pressure on the abdominal aorta or iliac arteries, both of which means promote the afflux of arterial blood to the brain, and thus help to sustain it in the exercise of its functions. If there are signs of great venous congestion, bleeding at the right jugular vein, care being still taken to avoid the further entrance of air, may at

once relieve the brain and the right side of the heart of excess of venous blood. For the rest, the usual remedies applied in ordinary syncope should be invoked, such as aspersion with cold water, the application of ammonia to the nostrils, and warmth to the extremities. Dr. Cormack recommends the alternate use of hot and cold douches combined with stimulants, in those cases which threaten asphyxia. "In many instances," he says, "repose, dashing cold water in the face, keeping the surface warm, and time may be the only means which ought to be used." (CHURCHILL, *op. cit.*, p. 531.) If the immediate danger is averted, care is to be taken against the supervention of inflammation in the lungs.

The preventive measures consist simply in avoiding as far as possible all the known conditions which favour its occurrence. In most of the cases the means of avoidance suggest themselves at once in connection with the danger. A few measures require particular mention. Erichsen recommends with Gerdy enveloping the chest in tight flannel bandages to prevent the deep, gasping inspirations which favour the ingress of air. This has been objected to on the ground that respiration would be too much interfered with, while the admission of air would not be prevented; but aside from this, the now universal use of anæsthetics during surgical operations renders the respiration sufficiently regular by controlling the emotional influences which would otherwise disturb it. On the other hand compression of the hypogastrium after delivery, by means of a bandage around the abdomen, as advised by M. Amussat (*op. cit.*, p. 245), seems a judicious prophylactic measure. He also recommends that the thighs be kept approximated. M. Dupuytren counselled that, in the removal of tumours in the dangerous region, they should be divided into several portions by crucial incisions, and thus removed piecemeal, to avoid the traction necessary in dissecting them whole from the adjacent tissues, and M. Graedemur has taken a similar precaution since the occurrence of the accident under his hands. (*Am. Journ. Med. Sci.*, July, 1842.) M. Blandin also advocates this plan of crucial incisions, and in addition, in view of the fact that the accident seems to be more uniformly fatal when occurring towards the close of an operation wherein considerable blood has been lost, proposes that the extirpation of tumours be commenced at the part most exposed to the access of air, instead of leaving that until the last, as is usual. (*Gaz. Médicale*, 1843, p. 51.) Compression of the large veins between the seat of operation and the heart has been recommended, but would often be objectionable from causing turgidity of the vessels. For the rest, a full knowledge of the conditions favouring the entrance of air into the veins, and the keeping that knowledge in mind during all operations and in the care of all cases in which there is a possibility of danger; these are the best safeguards against it.

In the imperfect sketch which we have now given of this important subject, we have endeavoured to give especial prominence to its practical

aspect. We have not taken up single cases and analyzed the evidence for and against each; having neither space nor disposition to do this, but preferring to admit at the outset, that every case cited, while it adds something of value to the whole mass of evidence, is of itself imperfect; but we have presented an array of facts and authorities which, taken as a whole, must, we think, convince any candid mind that fatal accidents have occurred, and may again occur, in all of the ways which those cases illustrate. By giving a *résumé* of the cases already known, with an account of the conditions under which they occurred, by indicating other circumstances under which there is more or less reason to apprehend danger, and by citing instances of an analogous class of cases which it is practically desirable to distinguish from these, we have hoped to aid the practitioner to deal intelligently with any case of the kind which he may have the misfortune to encounter, and therefore have been content to pass over very briefly the medico-legal and therapeutic aspects of the subject. In conclusion, we commend the matter to the attention of the practical men of the medical profession, whatever their specialty, feeling confident that it is well worth the trouble of further investigation.

DORCHESTER, MASS., Sept. 1863.

---

ART. IV.—*Remarks on the Epidemic Influenza of 1861 and of 1863, with Notices of some Malignant Forms of this Disease.* By JAMES J. LEVICK, M. D., one of the Physicians of the Pennsylvania Hospital.

FROM the early part of December, 1860, to the latter part of March, 1861, there prevailed, with varying intensity, in the city of Philadelphia, a wide-spread epidemic of influenza. After an absence of nearly two years, this disease suddenly reappeared in the early part of the present year, and has existed among us, more or less, to the present time.

Full notes of the cases coming under his care are in possession of the writer; from these the following summary has been compiled, which is offered as a contribution to the history of this most interesting disease. If the facts thus recorded furnish but little that is new respecting influenza, they may, at least, possess some value as another illustration of the words of Dr. Theophilus Thompson, who, writing of influenza, in the year 1852, remarks: "Nothing can more forcibly prove the definite character of the influence which produces this disease, than the similarity of the symptoms during several centuries, and under such different degrees of civilization. We find the affection, in our comparatively luxurious days, manifesting the same phenomena as it exhibited when the presence chamber of sovereigns was strewn with straw, the entrance of aristocratic mansions obstructed

with decaying vegetable matter, and a lantern required at night to guide the wary steps of the citizen through the 'slabby streets' of the metropolis."

As observed by the writer, the influenza of 1861-63, attacked chiefly adults, and was especially severe in the aged and infirm, the only fatal case being that of a lady aged eighty-five years.

The disease, in its invasion, was very sudden, beginning with a feeling of coldness, sometimes, though not always, amounting to a chill, it was soon attended with severe pains in the loins and limbs, "pains in the bones," as the patients termed them, achings, soreness, and a sense of general weariness. These were followed by some heat of skin, not great; a frequent, but compressible pulse; the tongue covered with a white, or brownish-white fur, in some instances the tip of the tongue of a bright red colour, as if scalded. With the febrile symptoms there were, in many cases, intense cephalalgia, and a sense of fulness, and soreness, increased by jars or other movements. Insomnia, and, occasionally, a busy delirium, resembling that of *mania-a-potu*, were present in some instances. A feeling of roughness in the throat, accompanied by an erythematous redness, was present in many, but not in all cases. There was soreness beneath the sternum and ensiform cartilage, and great præcordial and epigastric distress, with nausea, and an utter loathing of food. As a rule, the bowels were constipated, but, in one or more instances, diarrhœa, interchanged with pulmonary disturbance. Cough and dyspnoea, in varying degree, were present in the majority, but not in all of the cases. The bronchial secretion was very tenacious, and somewhat discolored; patients complained greatly of the difficulty in ejecting<sup>1</sup> it. The physical signs varied, but, in the more severe cases, there was slight dulness on percussion, with sonorous, sibilant, and coarse, subcrepitant rales, and evidences of capillary bronchitis, or, of an imperfectly developed pleuropneumonia. In the earlier stages, as has been intimated, the skin was dry and warm, with other phenomena of febrile disease, but, in no instance was there high arterial excitement; the pulse, though reaching 100, or even 120, was soft and compressible. These symptoms continued, as a rule, for several days, after which the skin became moist, and profuse perspirations occurred, especially at night. In some instances, these appeared to be critical, but it was not until the tongue began to clear that the convalescence could be pronounced. A tendency to perspirations continued even after the patient had got about again.

A heavy, febrile odour, at once perceived on entering the room, was noticed in nearly all the cases. The disease appeared to have imperfectly developed remissions in the morning, and exacerbations in the evening. In some instances, these were very well marked.

<sup>1</sup> I use this expression purposely, as they really did *expectorate*, but were unable to get the secretion beyond the fauces, and generally swallowed it.

The urine was scanty, in some instances very turbid and high coloured, and, as the disease advanced, deposited a copious sediment.

A constant and very characteristic symptom of this epidemic was the sudden and intense mental depression in all the cases noted. In many instances, this depression of spirits was such that strong men moaned and wept like children, and, though in vigorous health up to this attack, utterly despaired of recovery. This feeling of despondency was variously expressed, patients complaining that they were "completely used up," felt "like a wet rag," were "utterly, utterly wretched!"

While these were the ordinary phenomena of the disease, various *anomalous symptoms* occasionally presented themselves, associated with, or seeming to possess, a close relationship with those already enumerated. Among these, were swelling of the parotid and other glands, earache, buzzing, and other sounds in the head, giddiness, intense pain in one eye, soreness, and, in one instance, exquisite tenderness of the abdominal muscles, simulating peritonitis. One case occurred of acute arthritic disease, presenting, in other respects, the symptoms of influenza, running a similar course to this disease, and amenable to similar treatment.<sup>1</sup> Other diseases appeared, indeed, to be modified by the epidemic influence, putting on, as it were, the livery of influenza.

The duration of the disease varied. In the mildest cases, conva-

<sup>1</sup> This case, though the propriety of classing it with the others may well be doubted, was an interesting one, and may be worth giving in detail. J. C., a medical student, æt. 28, had been called up a night or two preceding—was seized with a chill, and severe pain in the back and limbs. On the next day, the ankle and knee-joints were much swollen, of a dull red color, with little or no increase of heat, pulse 84, the tongue covered with a white creamy fur. Patient complained of pain, and inability to void his urine. On the following day he was entirely unable to move the lower half of his body, the joints very painful. There was no cough, the skin was of a decided yellow hue, and the general appearance of the patient, and the odour emitted from the body and the breath, recalled that of a case of yellow fever. There was, however, nothing in the previous history of the patient, a large and vigorous young man, to justify an unfavourable prognosis. Active catharsis was avoided, and lemon juice every two hours was prescribed, and the solution of morphia at bedtime. On the following day, a sudden and profuse hemorrhage from the kidneys occurred, and the condition of the patient became an alarming one; total inability of movement continued. An irregular papulous eruption now appeared on the forehead and parts of the body. The sulphate of quinia (gr. xvij in three grain doses every hour) was now given, lemon juice continued, and essence of beef administered. In the evening the patient was rather more comfortable, urine still bloody. The quinine was continued next day with marked benefit. On the next day, the patient moved his limbs without difficulty, and, one day later, was walking about his room. He had at no previous time suffered from rheumatism, and, if this attack was one of acute rheumatism, its symptoms, and its course, were greatly modified by the prevailing epidemic influence.

lescence began on the third day, or earlier; while in a severe case, not until the fourteenth. Valetudinarians and the aged were left greatly shattered by an attack of it.

As it presented itself in the late epidemics, the disease was liable, in the beginning, to be confounded with typhoid (enteric) fever, from the character of the pulse, the appearance of the tongue, the headache, and, in some instances, the occurrence of epistaxis and diarrhoea. From this disease it was generally distinguishable by its sudden invasion, the absence of the characteristic eruption, the briefness of its duration. From ordinary catarrh it was recognizable by the great constitutional disturbance, especially of the nervous system, entirely disproportionate to the extent of the local disease.

It resembled, in many of its symptoms, the disease known as the *Dengue*, and corresponded very closely to the description of "the mountain and wintry fevers," epidemics of our remote Western States.<sup>1</sup>

The treatment adopted by the writer, in this epidemic, was a mustard emetic, if nausea, with ineffectual attempts at vomiting existed, a mild mercurial purge, the solution of citrate of potassa, in the form of the effervescing draught; solution of morphia with sweet spirit of nitre, at bedtime, and, as soon as the remission occurred, full doses of sulphate of quinia; this last continued in diminished doses until convalescence was fully established. When the pectoral complication was serious, turpentine stupes, or mustard and mush poultices, were applied to the chest, and the muriate of ammonia exhibited. In this connection it may not be amiss to note that, where the lungs were seriously involved, there was less intense pain in the head, and conversely. Blood was in no instance taken.

In some instances the combination of solution of sulphate of morphia and the spirit of nitric ether, a sedative diaphoretic operating like the Dover's powder without producing its nausea, acted like a charm, while it failed in others to do so. The impression left on the writer's mind was, that opium, though admirably suited to those cases in which there was no pulmonary complication, was not adapted to those in which there was the very tenacious secretion or exudation, of the difficulty in getting rid of which so many patients complained. As a rule, however, it was a most valuable remedy. So too with the sulphate of quinia. Just as soon as there was a febrile remission, the careful introduction of this medicine until fifteen or eighteen grains had been taken, was attended with the happiest results, and this, no matter in what form the disease manifested itself, in the head, the chest, or even in arthritic swellings. In one instance in which the disease appeared to be in its forming stage, the full antiperiodic dose of quinia appeared to entirely arrest its further development. Of course how far this result was due to the medicine exhibited must be but conjectural. As has been intimated, in no instance was the abstraction of blood thought proper.

<sup>1</sup> See Medical Statistics U. S. Army.



To the writer this seemed forbidden both by the etiology and pathology of the disease as well as by the obvious symptoms. Even where there appeared to be great pulmonary congestion, the application of the turpentine stupe, a most convenient and powerful derivative, was deemed preferable to the use of cups, either wet or dry.

Thus far in referring to this disease I have limited myself to the description of its phenomena as presented in the late epidemics. As has been already remarked, these correspond most accurately with those recorded as occurring in former epidemics, the record extending over a period of three and a half centuries. That wonderful observer, Sydenham, gives us an accurate description of the epidemic as it prevailed in the year 1675. Attributing the gravity of the disease to the epidemic fever with which it was associated, and not to the mere pulmonary inflammation, he makes the following instructive statement: "Bad as might be the stitch in the side, or the difficulty of breathing, and pleuritic as might be the character of the blood, the treatment was the treatment that squared with pleuritic fever, and not the treatment that squared with true pleurisy." After some judicious remarks on those modifications of pleurisy which forbid the lancet, he utters the following words of wisdom: "And here I must again remark, that in the treatment of fevers, the physician who does not keep continually before his eyes the constitution of the year, the extent to which it favours the production of this or that disease, and the power it has of twisting to its own proper shape and likeness all the other concurrent diseases of the time, wanders wildly in a maze without a clue."

I have already referred to the intense mental depression which was present in all the cases coming under my notice in the late epidemics. This was a more constant and more distressing symptom than the pulmonary complication, indeed it was often present without any accompanying pulmonary lesion. Pectoral disease, though a very frequent, is by no means a constant complication of influenza, and not an essential phenomenon. This has been noticed in the late epidemic, and in many previous ones. Thus, in an account of the epidemic of 1782, by Dr. Edward Gray, F.R.S., whose paper is a compilation from letters received from a large number of the most distinguished physicians of that time; the testimony on this point is very clear and decisive. I need not quote but one of these—Dr. Gilchrist, of Dumfries, writes: "In many of the cases of influenza of this year there was no cough, no sneezing, nor any defluxion showing a particular affection of the membrana Schneideriana, so that the disease might have been mistaken for the ordinary kind of fever frequently occurring in this country (in which there is often a tendency to rheumatic or pleuritic symptoms), if it had not been attended with the unusual sickness and oppression observed in the catarrhal fever, and frequently with disorder in the primæ viæ." Dr. Pearson, in his account of the epidemic of 1803, is equally conclusive on this point. He demonstrates very clearly that this pulmonary affection is

due "to the changes of temperature and other sensible qualities of the atmosphere as giving rise to the predominance of a certain set of symptoms at one time rather than another. Thus in frosty weather, and during northerly and easterly winds, the catarrhal and peripneumonic affection will be most conspicuous, while in warm weather, and during westerly and southerly winds, the headache, sickness, disordered bowels, glandular swellings, &c., will constitute the most urgent symptoms." Similar testimony is borne by the elder Dr. Warren, of Boston, by Sir Henry Holland, by Drs. Graves, Watson, and others.

I have dwelt on this subject longer perhaps than may seem necessary, because I consider that it has an important practical bearing.

In the popular, and to some extent in the professional mind also, *Influenza* is associated, if not identified with *Catarrh*, and from the prominence given to it, it is to be feared that in the treatment, this, the more conspicuous phenomenon of the disease, claims the chief attention of the physician, while the far more important, but less obvious specific fever, upon which its existence depends, or by which its therapeutical relations are greatly modified is neglected; a treatment instituted which, however well suited to the ordinary forms of pulmonary inflammation, does not, to use the words of the immortal Sydenham, "square with pleuritic fever." For, as I think has been clearly demonstrated, influenza is *essentially a fever*, as much so as is enteric or typhus fever, though more ephemeral in its duration.<sup>1</sup> Like typhoid fever, it has its peculiar cause, peculiar phenomena, peculiar course. Like typhoid fever, or even much more so, for the most part it affords a favourable prognosis, but like this it may prove fatal from becoming complicated with serious enteric or pulmonary disease, or like the terrible epidemics of typhus and typhoid fevers with which we are sometimes visited, it too may put on a fearfully malignant and pestilential character. That this view of the nature of influenza is the correct one, no one, I think, will question who has carefully studied the disease at the bedside, or who is at all familiar with its past history. Not to weary the reader with numerous quotations, I will but adduce the following from Pearson, who in his account of the epidemic influenza of 1803, writes: "From this sketch of the disorder it is evident that the epidemic differs from a common catarrh in the degree and kind of fever with which it is accompanied; and that as it is the fever which constitutes the essence of this disease, and not the catarrh, it should be denominated *epidemic catarrhal fever*, or, *synochus catarrhalis*, and not simply epidemic catarrh. As it is the fever which constitutes the essence of the disease, our first attention should be directed to it, and not to the cough (except when accompanied with pneumonic inflammation), otherwise by prescribing

<sup>1</sup> See Clinical Lectures, by W. T. Gairdner, M. D., &c. Edinburgh, 1862, p. 100.

only for one of its symptoms we shall make but little impression upon the general morbid affection."

Unfortunately, as yet, we are unable to detect the nature and character of this peculiar morbid cause, as, indeed, we are that of many other fevers. All that we can at present do is to watch, and note carefully the peculiar circumstances under which the epidemic catarrhal fever is developed, and the peculiar phenomena which each epidemic presents. In the popular mind, as already intimated, its prevalence is identified with the cold and damp weather of our winter and early spring months. Certain it is that with us it has especially occurred at such times. But this epidemic fever is by no means limited to these seasons of the year. It has prevailed with equal violence in the height of summer and in the depth of winter, at sea and on land.<sup>1</sup>

That it is not due to contagion will, I think, be readily admitted. The wonderful rapidity of its invasion and extension to vast numbers of people, and the fact that one attack of influenza gives no immunity from subsequent attacks, are both opposed to the laws of contagion. We group together, under the name of *epidemic influence*, the morbid agencies, be they what they may, which are concerned in the production of this disease, and contenting ourselves with this, we have next to consider how the phenomena of the disease are developed by it. Here, too, we are compelled to rest satisfied, rather with speculation than with positive demonstration. So rarely have deaths occurred from the ordinary form of this fever, uncomplicated with the results of previous disease, that it is almost impossible to decide how much of the pathological appearances presented are due to the former, and how much to the latter condition. In the only fatal case occurring to me, the patient had been an invalid for more than forty years, and the post-mortem inspection was made rather with reference to this long-continued disorder than to that which was the immediate cause of death. And yet, on comparing my notes of the appearances in this case with those reported by others as found after death from this fever, and which at the time my record was made were unknown to me, I am astonished at the perfect identity which they present. Dr. Graves<sup>2</sup> reports slight redness of the air-passages, a discoloration of the parenchyma of the lung, smooth to the touch, the lung tissue soft and breaking up under the finger, without any of the odour of gangrene, with no evidence of red hepatization or of suppuration, dark fluid blood in the cavities of the heart, lung highly œdematous, with old pleuritic adhesions. Those of my medical friends who assisted in the post-mortem examination will agree with me

<sup>1</sup> See "An Account of the Influenza as it appeared in Philadelphia in the autumn of 1789, in the spring of 1790, and in the winter of 1791." By Benjamin Rush, M. D., &c. See also Holland's *Med. Notes and Reflections*, pp. 188 and 189.

<sup>2</sup> See *System of Clinical Medicine*, Am. ed., p. 473 *et seq.*

that, had the Dublin professor been with us, he could not more accurately have described the specimens then before us than he has done in the paragraph above quoted. This may be a mere coincidence, and yet I cannot but believe that the condition of the respiratory organs here described is that which often exists in cases of influenza, complicated with pulmonary disorder. Not a condition of exalted, but of depressed vitality, and that in many instances (of course not in all) the moist rales which are heard are not those of pneumonia, or of bronchitis, but of *œdema of the lung*. As was mentioned in the early part of this paper, they are not the fine crackling rales of pneumonia, nor yet the coarse moist rales of bronchitis, but something between the two, very closely resembling, if not identical with the recognized rales of pulmonary œdema. If, for the sake of argument, this proposition be admitted, how are we to account for their production? Dr. Graves, without noticing in this connection the condition I have alluded to, refers the dyspnœa in this disease to some impression made on the vital activity of the lung. Quoting the well-known experiment of Dr. Reid, to show that when the eighth pair of nerves is divided the animal is slowly suffocated, and on dissection the lungs are found engorged, and the bronchial mucous membrane congested and inflamed, he asks, "May not the affections of these parts in influenza be sometimes induced by *lesions of the nervous power* in the lungs?" In this view, he writes, he is sustained by Dr. Blakiston, who, in his Treatise on Influenza, "states that his researches have led him to the conclusion that influenza is an affection of the nervous system, with its concomitant derangements of the organs of digestion, circulation," etc. That the epidemic catarrhal fever (or, as it were better called, the *Epidemic Short Fever*, giving it the title by which it was known a century ago, derived from the name of the author, who was the first to accurately describe it, and which by a happy coincidence applies to the brief duration of the disease) is a disorder in which the nervous system is greatly involved, will I think be doubted by no one. But in these days of recurrent humoral pathology, it will be questioned how far this disturbance of the nervous system is a primary or a secondary condition; whether the septic influence acting directly on the blood may not in the course of the zymotic changes thus induced secondarily affect the great nervous centres which preside over the functions of respiration, circulation, and nutrition. I shall not venture to discuss this question here.

Accepting the view given by Drs. Graves and Blakiston of its pathology, we can readily explain many of the phenomena of this disease which would otherwise be unintelligible. We can comprehend how, when the poison is expended chiefly on the sensorium, we may have buzzings, giddiness, faintness, intense headache, delirium, insomnia. When upon the respiratory centres, we have dyspnœa, passive congestions, pulmonary œdema, and

the enfeebled lung left exposed to the assaults of inflammatory or other disease.

So, too, with the various anomalous symptoms with which the history of every epidemic of influenza is replete. In some individuals the glandular system is peculiarly obnoxious to attack, and we have swelling of the parotid, or submaxillary glands. In others the articulations, and we have symptoms closely allied to those of rheumatism, but still retaining the characteristic symptoms of influenza, as evinced by the prodromes, by the pulse, the tongue, and general condition of the nervous system. Where the poison is less concentrated or the forces of the system are able to resist its full development, the morbid influence will be limited to a sense of weariness, pains in the back, and general *malaise*. In some instances, acting as a determining cause, this same influence may develop "particular diseases incident to particular persons," clothing them in its own peculiar garb. This last tendency has been noticed by many of the older writers; thus Dr. Warren (1789-90) says the influenza often assumed the form of rheumatic affection. Dr. Rush (1789, '90, '91) writes: "I saw one case of ischuria, one case of pain in the rectum, a third of anasarca, a fourth of palsy of the tongue, all of which appeared to be anomalous symptoms of influenza; some had pain in one eye." Dr. Gairdner, of Edinburgh, in his valuable *Clinical Lectures*,<sup>1</sup> has especially called attention to this effect of influenza on other diseases. He states that "by the influenza of 1847-8 the whole mortality was increased one-seventh; it doubled the deaths from bronchitis, largely increased those of other acute diseases of the chest, while the aged and the very young, the apoplectic, paralytic and consumptive suffered out of all proportion to the rest of the population. These deaths, though not set down as due directly to influenza, were doubtless due to the epidemic influence of influenza"—and so, too, it has been with every epidemic of this disease.

Dr. Haygarth (the author of the admirable paper on "Nodosities of the Joints"), in the year 1775 writes of this disease:—

"The most common anomalous complaint was a diarrhœa with blackish stools; sickness and vomiting occurred less frequently. I saw five patients who had fallen down in a swoon, preceded by a violent headache. \* \* \* The fifth of these was a married lady who, without a preceding cough, had a very violent looseness, succeeded by a phrenitic delirium, and then by a very urgent cough, the looseness, delirium, and cough succeeded each other alternately twice over in a regular manner, but never existed together."<sup>2</sup>

<sup>1</sup> Op. cit., p. 105.

<sup>2</sup> The most accurate classification of the epidemic influenza as the force of the disease is exhibited in one organ or another, is that prepared by the *Société de Médecine*, and published, by its order, in the *Moniteur de Paris*, 1803. Before referring further to this, it is well to remember that the word *Catarrh*, which, in our language, is almost limited in its application to pulmonary disorder, is not so understood by the French and others. In its strict etymological meaning, *catarrh*—*καταρρεω*—is a

It may seem visionary thus to class under the one head of Influenza phenomena so diverse, but the evidence which has come under my observation, during the late epidemic, on this point, is to me irresistible, and the testimony of all the authorities is conclusive. Sir Henry Holland, in his classical "Notes and Reflections," has, in connection with this subject of influenza, expressed himself very decidedly thus:—

"The simultaneous or rapidly successive influences of a common morbid cause over large communities disclose relations which in no other way are equally accessible to research. In showing the various forms which a single disease is capable of assuming, it illustrates the nature and action of the circumstances which thus modify it, and especially the effect of particular textures in altering the aspect of the symptoms. It is probable that we may hereafter learn from it the virtual identity of many diseases hitherto placed asunder by distinctions which have foundation only in subordinate symptoms, thereby disguising from us what is most important in pathology and practice. Or, if no such identity be proved, we may find evidence scarcely less curious, of an epidemic state of constitution which, originating with the same causes that produce influenza, renders the body for a period more prone than usual to certain diseases, the material causes of which are ever more or less present."

Before concluding this paper I may perhaps be permitted briefly to direct attention to one or two phenomena of the late epidemics which have been but slightly if at all referred to. I have already alluded to the sudden invasion of the disease, the intense pain in the head, and the great depression of spirits; these, therefore, need not claim further notice. The occasional occurrence of *cutaneous eruptions* was observed in several cases of influenza during the present year. In one or two instances the exanthem covered the whole body. Viewed at a distance it was not unlike the eruption of measles; but on a more careful inspection it seemed to be that of *lichen tropicus*, induced perhaps by the febrile heat, or that of an excess of bed-clothing. In another case the eruption resembled a scanty crop of urticaria. Other cases have been reported to but not seen by me. This phenomenon has been noticed in almost all preceding epidemics; thus Huxham, 1743, writes: "Frequently towards the end of this epidemic several red angry pustules broke out." Whytt, 1758, reports an imperfectly developed rash, which disappeared when the cough set in. Baker

*defluxion*—a flowing from—any mucous cavity, and so it is evidently understood in this instance. After reciting the ordinary symptoms of the *epidemic catarrh*, the disease is classified into seven varieties, each distinguished by the structure principally affected. These are the *nasal*, the *guttural*, the *bronchial*, or *peripneumonic*, the *suffocating*, and the *intestinal catarrh*. There is also described an *inflammatory catarrh*, and a *catarrh complicated with the putrid or adynamic fever*. See also, in this connection, Canstatt, *Die Specielle Pathologie und Therapie*, p. 672. Erlangen, 1847. vol. ii.

<sup>1</sup> See Medical Notes and Reflections. By Henry Holland, M. D., F. R. S., &c. London, 1839, p. 92.

speaks of the preliminary pains as resembling those of an eruptive fever, and mentions the occurrence of a miliary eruption. Ratty, 1762, notes an efflorescence like that of measles, with violent itching; later cases with petechiæ, though the miliary type was most common. Heberden, 1775, saw two cases of influenza, in which there was an eruption like that of scarlet fever. Haygarth, 1775, reports a red itching rash. Dr. Gray, 1782, reports "watery blisters about the upper part of the body, swellings on the face and other parts, attended with considerable soreness, apparently erysipelatous, and a miliary eruption like the chicken-pox." Dr. Carmichael Smyth, 1782, says: "Some had erysipelatous patches, or efflorescences on different parts of the body, which, in one instance, terminated in gangrene." He observed petechiæ in one instance. Dr. Rush reports erysipelatous and miliary eruptions in the epidemic influenza which prevailed in Philadelphia in the years 1789-90-91. Canstatt (*op. cit.*, p. 678) refers to similar eruptions, and mentions the occurrence of petechiæ. Other illustrations might be readily adduced.

The grade of the epidemic catarrhal fever is, in most instances, that which I have described. Occasionally, however, it goes a degree further in the downward scale, and assumes the form of a putrid fever, with all the marks of septicæmia.

This change of type is in perfect parallelism with that of the other specific fevers. We see it occurring in enteric and scarlet fevers, in erysipelas, and in smallpox. Take scarlatina, for instance; how often do we have this disease prevail as an epidemic so mildly as to need no further care from us than that we should watch against accidental lesions, the tendency, perhaps, an adynamic one, and yet exhibiting itself only by general debility? how often, alas! on the other hand, do we have the disease putting on that fearfully malignant form of blood poison, imperfect eruption, petechiæ, sordes, with fierce delirium, or, with coma, ending in death, a result which all our resources are unable to avert? Not only do entire epidemics assume this form, but we are occasionally startled from our fancied security in the midst of the mild form of the disease, which I have described, by the sudden occurrence, here and there, of sporadic cases of scarlet fever in its most malignant form. Nor, strange to say, are these putrid cases always found among those individuals who, from congenital or acquired infirmity of constitution, we would have supposed especially liable to this form of the disease. In such cases, we have the disease assuming an adynamic, or typhoid form; but I am sure I will be sustained in the assertion, that, where we would have least expected it, scarlatina, at times, puts on its most malignant type.

Epidemic catarrhal fever, like scarlet fever, is a special fever, due, like scarlatina, to some special cause, and, like scarlatina, amenable to special influences; hence it, too, like scarlatina, may assume a malignant or putrid form.

We have, at this time, as is well known, in our immediate community, and in different parts of our country, a malignant fever prevailing. We have, also, as has been shown, a wide-spread epidemic of catarrhal fever. This malignant fever, it would seem from the accounts we have of it, differs in many respects from our ordinary malignant typhus, malignant scarlet, and enteric fevers. Though presenting, in some of its symptoms, an analogy to the malignant form of scarlatina, I think it can scarcely be classed with that disease. The absence of anginose symptoms, the absence of the scarlet fever rash, both of which, though in an imperfectly developed state, are rarely entirely missing, even in the malignant forms of scarlatina; the fact that those in whom this fever has proved fatal have suffered from previous attacks of scarlet fever, the total absence of any evidence of contagion, all these, I say, though not conclusive, must have their weight in turning the scale against this decision.

So far as I can recall the descriptions given of this malignant fever, at a meeting of the Philadelphia College of Physicians, March 4, 1863, it would seem that its prominent symptoms are a sudden attack from entire health, a chill, intense pain in the head or the back of the neck, intense pain in the back, wild delirium, coma, great prostration, imperfectly developed petechial eruption, a rapid course and death. After death extravasations of blood are found in various tissues, passive, hypostatic congestions, but no evidence of inflammation in the brain or elsewhere. It would appear that no age or condition of life is exempt, it having proved alike fatal to the infant at the breast, and the aged grandmother of eighty.

After hearing this description, I ventured to inquire whether the cases reported might not be but a *malignant form* of the fever which was then prevailing in our midst. I was led to this inquiry, reasoning on these general principles—that “the catarrhal fever” was the only fever to any extent epidemic among us, that this malignant disease did not correspond with any one of our endemic fevers, while it had many symptoms which were common (though not peculiar), to this, and that it derived its entire importance from the putrefaction which the blood had undergone, a pathological change which might occur in any fever, this as well as the others. I then had and since have seen no cases of this malignant fever, and, therefore, neither then nor since, have pretended to give any positive opinion respecting it.

Nevertheless, I cannot forbear putting on record, as an interesting coincidence, the fact, that the epidemic influenza of 1863, which, as I have shown, presents in its varied phenomena so many points of resemblance to those of former epidemics, completes the analogy by occurring simultaneously with the prevalence of a putrid fever, a concurrence which has been noticed from the earliest times. Of this last fact I was not aware when I put the question I have referred to, my attention having never been especially directed to the literary history of the disease. Since then I have care-



fully investigated the subject, and with the evidence thus obtained will close my paper.

Short, in describing the epidemic catarrhal fever of the year 1557, writes: "Some had swellings of the throat, bleeding at the nose, some had spots." Forestus relates that the epidemic catarrhal fever of 1580 was "complicated with a malignant fever or plague." Willis, in 1658, mentions as one of the attendants of the epidemic of that year, "a bloody flux;" he adds, "the fever growing worse it is to be healed according to the rules to be observed in a putrid fever." Another author, of the same year, describes "a new fever affecting the brain and nervous stock." In the epidemic of 1762, Ritty describes the catarrhal fever as "beginning in May, and in the months of June, July, and August, it showed itself in the form of a putrid fever, sometimes attended with petechiæ, sometimes with a miliary eruption. In October and November of the same year, there was a remarkable increase of fevers both as to numbers and malignity; they were mostly of the low type, often petechial and sometimes miliary; several of them were attended with hemorrhages and other marks of colliquation." Fothergill, describing somewhat similar cases in the epidemic influenza of 1775, writes: "A few died phrenitic." In the same year sloughs on the tonsils are recorded by Cummings as attending this disease. Dr. Glass, of Exeter, mentions malignant sloughs on the tonsils, with swellings of these, and of the submaxillary and parotid glands. So convinced is he of its malignant character that he calls it the epidemical catarrhus *semi-pestilential fever*. Dr. Haygarth, of Chester, reports a case of "a young lady at a boarding school, who was seized at the same time and with like symptoms as twenty-six of her school fellows, in whom was developed a putrid fever with black dry tongue."

Dr. Skene, of Aberdeen, relates that though the influenza prevailed in his town, it did not visit Frazerbrough near by, *though there was a putrid fever there very fatal at that time*.

Dr. Gray, describing the influenza of 1782, relates that "watery blisters, with considerable soreness, apparently erysipelatous, and others of a different nature forming abscesses, were sometimes observed. In some instances a painful swelling of the abdomen constituted the most disagreeable symptom of the disorder. In others there were remarked evident signs of a tendency to putrefaction, and in one case the disease seems to have put on the form of nervous fever." Dr. Macqueen, of Great Yarmouth, writes the same year: "A gentleman from Cambridge University assures me that, in the opinion of many, the disease there put on more or less of a putrid type, for, besides the extreme debility, the mouth and fauces were generally covered with black viscid sordes." Dr. Ruston, of Exeter, goes even further; he states that "in some instances there seemed evidently a strong tendency to putrefaction, the fauces and throat were excoriated, the tongue very foul, having that kind of foulness common in ulcerated

sore throat, and in several patients in the hospital who had foul ulcers or were of a bad habit of body, that epidemic proved of the putrid kind. \* \* Several died with strong marks of putrefaction." Dr. Mease, of Strabane, writes: "I thought I should have lost one young patient of influenza, and you may be surprised at my mentioning him as an instance of the disease, when I tell you that his symptoms were those of a nervous fever, yet I think I am justifiable in so doing." Dr. Scott, of Stamfordham, states that "about six weeks from its first appearance, the epidemic catarrhal fever seemed gradually to verge towards the low and putrid." The same report is given from the Isle of Man. The Chevalier Rosa, professor at Modena, pronounces the influenza to be "*une véritable peste*." Dr. Carmichael Smyth mentions cases of influenza "in which there were erysipelatous patches or efflorescences \* \* \* which, in one instance, terminated in gangrene." He noticed petechiæ in one instance. In an account of influenza published by the London College of Physicians at this time, after describing the ordinary symptoms of the disease, it is stated that the occurrences were, "in some few, an unusual disposition to sleep, in others strangury independent of blisters, and, in some instances, attended with bloody urine for three or four days, hemorrhage from the nose," &c.<sup>1</sup>

Dr. Rush, referring to the epidemic catarrhal fever as it prevailed in Philadelphia, states that "in some cases there were erysipelatous eruptions, and in four cases miliary eruptions followed. In a few persons the fever terminated in a tedious and dangerous typhus."

In the epidemic of 1803 Dr. Fraser writes: "About the same time that the influenza made its appearance, a most malignant fever, having some symptoms in common with influenza, began to rage, which has proved fatal to hundreds. Typhus was peculiarly prevalent at St. Neot's during the three months preceding the visitation of influenza." Pearson reports similar symptoms. Dr. John Johnstone reports in this epidemic two malignant cases, both of whom died. "In one of these cases the head became affected, the eyes red and glaring, the tongue black, the bowels swelled. In the second, a child six years old, who ate a hearty dinner on Sunday (having before had a slight attack of coryza) was found dying on Monday night, her throat inflamed, her eyes red and glaring. After death the neck became black in a few hours, the stomach green, and purple blotches broke out on the thigh."

Ricketson, describing the epidemic of influenza as it prevailed in New York in the year 1807, relates that the pains in the back and limbs were

<sup>1</sup> The quotations in this paragraph, as well as in other parts of this paper, are mostly taken from the original monographs of their authors, many of which are contained in the library of the Pennsylvania Hospital. The reader disposed to pursue this subject may find, with much less labour, in "The Annals of Influenza, by Dr. Th. Thompson," Syd. Soc., 1851-2, many of the facts I have recorded.

like those of typhus, and records the occurrence of diarrhœa, hemorrhages from the bowels, from the lungs, from the nose, and from the uterus. Dr. Clendenning reports similar malignant symptoms in the epidemic of 1836-7. Dr. Holland reports a similar tendency in the epidemic of 1837.<sup>1</sup>

Such is the testimony of more than three centuries on this subject, a testimony remarkable for the concurrence of the facts recorded.

More recently in our own country similar descriptions may be found of this malignant form of disease, which the epidemic influenza sometimes assumes. Having access to the Medical Statistics of the U. S. Army for the years 1839 to 1859, inclusive, I find that the epidemic catarrhal fever has at different times extended itself over our entire continent, alike exhibiting itself among the troops, whether stationed in Oregon, Utah, New Mexico, or the Gulf, the New England and other Atlantic States. I shall quote but two illustrations. That of Assistant Surgeon McParlin, who, writing from Las Vegas, New Mexico, remarks that since the middle of December this and the adjoining towns have been visited with an epidemic catarrh of quite a malignant character. He then describes the ordinary symptoms of the disease, and later its malignant form. Surgeon S. P. Morse, writing from West Point, N. Y., states that "the epidemic catarrhal fever prevailed at that post December, 1858," and adds that "the inhabitants of the neighbouring country have suffered much by the prevalence among them of a fatal disorder named *the black tongue*."

I shall not pursue this subject further. Enough has been adduced to show that the epidemic influence of influenza, if the tautology may be permitted, though ordinarily manifesting itself in a mild form of disease, is yet capable of developing symptoms of the gravest character, and that in all ages its periodical visitations have preceded, accompanied, or succeeded epidemic diseases of the most malignant and pestilential character.

PHILADELPHIA, April 1, 1863.

P. S.—I had concluded this paper when my attention was for the first time directed to an essay by Dr. Gallup, of New England, on the epidemic of the so-called "spotted fever," which prevailed in his vicinity in the years 1806, '10, and '14—the chief points of interest in whose history are that this "spotted fever," a name which he intimates is unsatisfactory and unscientific, has occurred at various periods in the 16th, 17th, and 18th centuries, with great mortality, and that it was followed by the plague, for which

<sup>1</sup> A little further on, in the same connection, Dr. Holland's words are: "A fever, accompanied in almost every case by a rash like that of measles, was very frequent in London after the greatest violence of the influenza in 1837. Again during the early months of 1838 and concurrently with, as well as subsequently to, the influenza then prevailing in London, the same character of low or adynamic fever existed to considerable extent and fatality, attended with an eruption, sometimes of scarlet, more frequently of dusky red spots. Instances of this nature are very frequent in medical history." See Holland, *op. cit.*, p. 94.

it was often mistaken. It was remarkable for the variety of its symptoms and mode of attack, "so that we are at a loss for a set of symptoms unless we resort to the method taken by some of considering its *eccentricity of character* as pathognomonic of the disease." Not content with this description, the author goes on to say that "the most constant symptom is pain in the forehead between the eyes, either with or without a sore throat, extreme lassitude, and faintness at the stomach, in some instances with great distress and vomiting, like cholera morbus. In some cases the access of the disease is very sudden, the system is thrown into great distress, and there is pain in some part or other, in the head frequently, followed by coma or delirium, in the back, in the side, or in the limbs, in the thorax or abdomen. Convulsions may occur. The tongue is commonly moist, covered with a white fur; sometimes a brown line appears in the middle. There is a severe anxiety in the region of the heart, the pulse generally feeble, fluctuating, and compressible at the commencement—the urine is but little changed. Strangury often attends this disease after a few days; there are extreme soreness and tenderness of the muscles, with great lassitude. The joints are sometimes affected with swelling and extreme soreness resembling rheumatism, but not attended with so much swelling. The sweats are attended with a peculiar smell, rather sickening, emitting a mawkish sweet halitus, somewhat cadaverous. The eruption which has given its name to this disease is *not a constant attendant*, and has as great mutability in its appearance as can be attached to the pathological character of the disease. It occurred in about one out of six cases, and in many instances there was not the least vestige of it. There was no fixed period for the eruption, but most commonly it occurred on the second day. Some were like petechiæ, some of a bright red colour of a pin's head size, sometimes it appeared in blotches resembling slight erysipelas or like erythema, sometimes it resembled measles, at other times it was in small vesicles, and in a few instances there were large vesications, few in number, and some containing an ichorous matter." The writer adds: "It cannot be required to notice all the anomalous symptoms attending this disease; they might fill a volume." The duration of the disease varied. "The most violent cases would sometimes end in twenty-four hours, in ease and convalescence; others would terminate in a low state of fever. The common period of termination was somewhere between the fourth and seventh day." The description of this disease is followed by an epidemic of *typhoid pneumonia*, which is represented to have occurred during and after the epidemic of "spotted fever." Dr. Gallup states that this last epidemic and the petechial fever had many things in common. "The chief difference seeming to consist in the locality of the principle affecting; in one epidemic it was the head, in the other the thorax." If the reader will compare the description of the spotted fever of Dr. Gallup with that given of the catarrhal fever recorded on the preceding pages of this paper, a record made at the bedside, not only without any reference to Dr. Gallup's essay, but without even a knowledge of its existence, I think he cannot fail to notice the remarkable correspondence of the two. Whether this correspondence is greater than exists between most febrile complaints must be left for him to determine.

ART. V.—*The Surgical Treatment of Amenorrhœa.* By HORATIO R. STORER, M.D., of Boston, Surgeon to the Pleasant Street Hospital for Women. (Read by invitation before the Norfolk District Medical Society of Massachusetts, Nov. 11, 1863.)

THE medical treatment of amenorrhœa has been fully discussed by a host of writers upon the subject; among the last of them, and very understandingly, by Dr. Bowman, of Montreal, in the *Canada Lancet* for June of the present year. Inasmuch, however, as there are certain cases of the affection which, in the most skilful hands, resist all of the therapeutic measures instanced, either in our usual text-books, or in the valuable paper alluded to, it may be of practical advantage to take up the subject just where it is there left, namely, in its relations to obstetric surgery.

Cases of amenorrhœa, while among the most frequent of those applying for aid, and, from their very diversity of origin, among the most interesting, have often been found, in practice, the most tedious and discouraging. Certain possibilities also of mistaking their real character, and of unintentionally, and so far innocently, committing malpractice, and thereby of adding confirmation to an opinion already but too prevalent, that the profession directly, or by implication, sanction the induction of criminal abortion, render them among the most important to which our attention is called.

There are two dogmas concerning them, however, that, with all respect for the large and influential class of practitioners by whom they are held, should not be accepted. They are the following, and I prefer to state them as expressed by writers of authority.

"It is easier," says Churchill in his last edition, "to manage almost any of the other curable diseases to which females are obnoxious."

"All attempts," remarks Condie, "to bring on the menstrual flux by directly irritating the uterus, whether by the introduction of bougies or not, are unjustifiable; we can conceive of no case in which they would be calculated to do good; they cannot fail, in many cases, to be positively injurious."

In practice such statements are daily disproved.

As a general rule, it will be found, recollecting the possibility of an unusually early occurrence of the menstrual climacteric or normal cessation, that amenorrhœa which has resisted all the therapeutic measures usually resorted to, depends, in the absence of pregnancy, upon one or other of the following causes:—

1. That the uterus is absent, or

<sup>1</sup> Diseases of Women, p. 152.

<sup>2</sup> Editorial note to Amer. ed. of Churchill, p. 149.

2. Imperfectly developed ;
3. That it has undergone too completely the process of involution after normal labour or an abortion ;
4. That the nîsus uterinus of menstruation or nervous excitability of the uterine mucous membrane is in abeyance, even though the ovarian excitability, and even the performance of their peculiar function, may be normal and complete ;
5. That the cervical canal or its inner orifice is partially contracted, organically, or by tonic or clonic spasm ;
6. That there is complete occlusion, congenital or acquired, of either the uterus, vagina, or external organs ;
7. That there exists metritis, acute or chronic, or some other general affection of the uterine mucous membrane, or a chronic retention within its cavity, as of fœtal debris ;
8. That there is lesion, usually inflammatory, of one or both ovaries ; producing its effect, perhaps, by derivation, or prevention of the usual and normal sanguineous determination ;
9. That there is present either general toxæmia, some distant organic disease, by its local congestions preventing the usual afflux of blood to the uterine system, or some distant functional disturbance giving rise to a drain upon the general system, whether hemorrhagic, diaphoretic, leucorrhœal, diabetic, or lacteal.

Any of these varieties, though more frequently the latter, may be attended by vicarious menstruation from distant surfaces, causing often the gravest errors respecting the true character of the disease ; a fact that explains many of the cures of so-called phthisis, chronic dysentery, etc., by irregular practice.

The several classes instanced are all more or less commonly met with, and are all amenable to treatment. From this statement I do not even except certain instances of the first class, those where the uterus is entirely wanting, which require, as will be seen, even more judgment and skill than any of the others.

Depending upon such varied causes, it is evident that the utmost care is necessary in the differential diagnosis of any given case ; and though I do not now propose to discuss the respective characteristics of either or any of the different varieties, there are yet certain surgical considerations bearing upon this point, of such importance as here to demand mention.

First and foremost ; a thorough physical examination of the patient, in cases of amenorrhœa that have resisted all the resources of general treatment, becomes absolutely necessary. As a rule, unmarried women should never in any case be subjected to such examination, unless the existence of organic disease or displacement is undoubted or reasonably suspected, or the woman has previously borne children, until all ordinary strictly medical measures have been brought to bear. On the other hand married women,

presenting any of the symptoms usually diagnostic of uterine or ovarian disturbance, should never be prescribed for until a proper physical examination shall have been effected.

2d. The examination when made, if in the case of an unmarried woman, should generally be aided by an anæsthetic, alike to prevent mental and physical suffering, and by complete relaxation of all pelvic muscular action to facilitate the diagnosis. The usual plea for refusing an anæsthetic at this time, that it is well for the patient to be able to realize her pain, I consider of no weight whatever; so deceptive are the reflex sensations produced by local pressure within the cavity of the pelvis, that it is of far greater advantage to have them altogether absent.

3d. Except in the instance of atresia vaginæ, or of some other local lesion absolutely demanding direct vision, the examination, especially in the case of an unmarried woman, should be only by the touch and that longer finger, the uterine sound. The obstetrician should always carry an eye at the end of his forefinger, and it is just as easy to educate the touch to this, as for the blind to their alphabet. Were the use of the speculum confined to the cases where alone it is legitimately required, namely, the comparatively few instances actually demanding local stimulation or cauterization, there would be far less quackery in obstetric practice, and far more general appreciation of the real frequency and importance of uterine displacements.

4th. In using the uterine sound, which is here indispensable in many cases to a correct diagnosis, the possibility of pregnancy must be borne in mind, even though the patient be unmarried, no matter how respectable her position, correct her general history, extensive her hymen, or of what standing the absence of her menses; for in default of this precaution many an unexpected abortion has been induced.

This premised, I proceed directly to the surgical treatment of amenorrhœa.

In the first place, the uterus is sometimes absent, and I have said that where this has been diagnosed, there are required extreme judgment and skill. It is often much more difficult to withhold the hand than to attempt aid, but it is evident that in many cases all assistance must be absolutely impossible. There are others, however, where the ovaries exist, and are perhaps well developed, and where there is an evident ovarian molimen. Here the question of attempting treatment will depend upon the theory held by the attendant, as to the essential nature of menstruation, and upon the condition of the patient during these monthly attempts at effective discharge. If the normal catamenia, which must be allowed to be strictly uterine or almost entirely so in their actual origin, are viewed as a mere incident or effect of the irritation or irritability consequent upon ovarian evolution, or as a mere independent excretion for the purpose of conveying from the uterus the unimpregnated ovum, it would hardly seem necessary ever to endeavour to assist nature in the cases to which we are now re-

ferring. But if, on the other hand, we grant that this discharge, while partly and by reflex action the effect of the ovarian irritability just alluded to, may also serve as a relief by crisis to any local congestion or disturbance dependent upon the same reflex action, and so evident in almost all cases of disordered menstruation,<sup>1</sup> and that the uterus besides, as has been well shown by Andral and Gavarret, is intended to act as an accessory respiratory organ,<sup>2</sup> then it may be thought judicious practice to endeavour to avert such congestion or disturbance by local depletions, dry cupping, &c., to the sacrum, abdomen, or region of the perineum. This treatment is undoubtedly indicated in plethoric patients, where the uterus being absent there is yet a molimen, and I am inclined to think it of importance in others, even where general congestion may not be present.

Secondly, the uterus being present, but as yet undeveloped. Here let me allude to the fact that conceptions may take place even though menstruation may never have occurred, and though the uterus may be far smaller than usual, provided only that its canal and those of the Fallopian tubes are sufficiently developed to admit the passage of either ovum or seminal fluid. I speak decidedly on this point, for I am satisfied that conception has taken place not merely in the comparatively frequent instance of periodical leucorrhœa or colorless menstrual discharge, but even when no critical discharge whatever has been recognized.

The indication in these cases is on the one hand to stimulate the lining membrane of the uterus to its proper excretory action, and on the other to excite structural growth and increase in the several component tissues of that organ. Many of the measures by which this has been attempted have utterly failed; this is true of galvanism, however and wherever applied externally to the uterus, of all applications to the os or vaginal wall, of all attempts to produce reflex or sympathetic action by irritation of the rectum, with aloes, etc., and of the exhibition of ergot, here based upon an erroneous theory—for even if it were possible to excite uterine contraction in such cases by ergot, or I might almost add in any case unconnected with pregnancy at nearly the full period, it is not by such transient muscular efforts that we are to insure structural growth. In these cases it becomes neces-

<sup>1</sup> My eighth class, where suppression of the menses accompanies ovaritis, though at first sight contradictory of the above hypothesis, really goes to confirm it; actual inflammation being a very different thing from a normal and strictly physiological congestion, and productive of wholly different effect.

<sup>2</sup> The importance, in this connection, of the above views I have elsewhere more than once insisted upon. They tend to explain the otherwise inexplicable fact of the immunity of chloroform from ill result during labour, the altered ratio of progress of phthisis during pregnancy, and other thoracic problems, and they account for the excellent results in the comparatively not uncommon cases of so called uterine asthma, which are almost always accompanied by amenorrhœa, obtained from the use of intra-uterine pessaries.



sary to invade the uterine cavity, and to have recourse to the means so ingeniously suggested to the profession, above all other men, by Simpson, of Edinburgh.

By the intra-uterine air-pump, the first of the two indications insisted upon may be fulfilled; I have more than once succeeded in thus inducing and keeping up the normal menstrual discharge when it had never before appeared. But this method has certain drawbacks; the instrument cannot be introduced unless there exists quite decided patency of the os, cervical canal and uterine cavity—it almost necessitates laceration of the mucous membrane, which under forcible suction must enter the open fenestræ, or even minute perforations, of the instrument, to which also it clings when this is withdrawn.

To the intra-uterine stem pessary, however, no such objections apply, and after an almost constant experience of its use for now nearly nine years, I do not hesitate to decidedly recommend it. Against this instrument very many objections have been urged; all of them, however, unfounded, provided certain precautions are taken.

The intra-uterine pessary, as I have elsewhere insisted,<sup>1</sup> should perfectly fit the patient; that is, the diameter of its stem should be of such size as readily to enter both the outer and inner openings of the cervix, and its length such as not quite to touch or bear upon the fundus uteri, which can easily be decided by the previous careful use of the uterine sound. If these precautions are attended to, little fear of inducing undue irritation need be entertained.

For the treatment of the cases now under our consideration, and for the purpose of producing an additional therapeutic effect by decided galvanic action, the stem should be formed of copper and zinc, the strips of these metals being generally placed end to end; but perhaps a still better effect would be produced if they were soldered side by side. The amount of action produced in this way is shown by the fact that, upon withdrawing the instrument from the uterine cavity, while the copper portion remains almost entirely free from deposit, that of zinc is found incrustated with a thick layer of foreign matter, which upon chemical analysis resolves itself into the metallic salt usual under similar circumstances.

<sup>1</sup> Preface to Simpson's *Obstetric Works*, Amer. ed., pp. 16, 18.

For the purpose, as here, of producing intra-uterine action alone and not of remedying a displacement, it is not at all requisite that the instrument should be provided with the vaginal stem and external clasp; indeed these additions are now seldom required even for preventing displacements, except in extreme and obstinate cases. I am now constantly treating the various versions and flexions of the uterus by Hodge's excellent levers, against which I was formerly prejudiced, but now cannot laud too highly. Should, however, the double instrument of Simpson be found indispensable, I must urge the modification of it proposed by myself in 1856 (*Boston Med. and Surg. Journal*, Nov. 1856, p. 288), by which a perfect fit to the patient may be insured.

The effect of the galvanic intra-uterine pessary upon amenorrhœa dependent upon deficient development of the uterus, is of a threefold character; for while the mucous membrane is stimulated to its functional action, a profound impression is produced upon the deeper structures of the uterus both by the direct galvanic influence and by the action of the contained pessary as a foreign body—exciting persistent or at times interrupted muscular action for its expulsion, and thereby a general hypertrophy and increase of growth, as in the case of concealed polypi, etc.

In the third, fourth, and fifth classes of absence of the menstrual discharge that I have enumerated, the same treatment by the galvanic intra-uterine retained bougie is also indicated, and in each it is productive, in a large proportion of cases, of very decided effect. In the third variety the process of atrophy which obtains to a certain extent after ordinary parturition, is carried to an abnormal excess. The cavity of the uterus, instead of its usual size of two and a half inches, measures but an inch and a half, an inch, or even less, and with this uterine effacement there often occurs also a cessation more or less complete of the performance of the menstrual function; the case as regards treatment being therefore rendered entirely identical with the class we have just been considering, those, namely, in which the organ has never been fully developed at all.

In some cases, again, there is apparently not the slightest organic deviation present, the ovaries seem to act in their normal manner, and yet the uterus does not respond by its usual flux. There is only wanting, as has been well suggested, a slight initiatory influence, like a touch to the pendulum, to be followed by regularity of menstrual recurrence and discharge.

In the fifth class of our series, which if but partial are generally attended by dysmenorrhœa also, there is required, in addition to mere stimulus and excitement, a certain amount of local dilatation. For this, the instrument already described may of itself at times suffice. Usually, however, I have found further measures required, relying sometimes upon the successive introduction of a graduated series of metallic bougies, and at others upon the use of expansible tents. Eight years ago I referred to the advantages and disadvantages of sponge for this purpose,<sup>1</sup> and have found in practice the suggestion I then made, of tents self-lubricating from their own intrinsic mucilage while expanding,<sup>2</sup> to answer various important

<sup>1</sup> Boston Med. and Surg. Journal, Nov. 1855; Simpson's Obst. Works, Preface to Am. ed., p. 16, Sept. 1855; this journal, Jan. 1859, p. 57.

<sup>2</sup> Association Med. Journal, London, May, 1855, p. 446; Glasgow Med. Journal, April, 1856, p. 116.

In practice I have thus far found slippery-elm bark to afford the best material for the special indication above instanced. The sea-tangle (*Laminaria digitata*), a variety of the so-called "devil's apron," or giant rock weed, has been suggested by Dr. Sloan, of Ayrshire, in the Glasgow Medical Journal for Oct. 1862, and since

indications. As a general rule, I do not favour lateral incision of the cervix, because seldom necessary; but this treatment sometimes becomes indispensable in cases of amenorrhœa dependent upon the cause now described.

In introducing the several instruments, to which I have alluded, within the os and canal of the cervix, certain precautions are all important. I have already spoken of the possibility of pregnancy, and of the risk in such event of unintentionally inducing abortion. The remark applies with equal force to the sound and intra-uterine bougie, whether these be applied for stimulation, dilatation, or the reduction of displacement. I am well aware of the tolerance and impunity with which at times the pregnant uterus bears such entrance, and have myself had several instances of this brought under my notice; but on the other hand, I have known, from the use of these instruments, more than one direct occurrence of the accident against which I would now guard the profession. I have already more than once referred to this matter in these pages, and have dwelt upon it at some length in my report upon the subject<sup>1</sup> rendered to the American Medical Association, in 1859; and, from much more extended experience of the true frequency of criminal abortion, I merely reiterate the opinions then expressed; their importance is rapidly becoming acknowledged.

referred to by several continental writers. It is acknowledged, however, to enlarge unequally in consequence of its cellular structure, and is liable to "a bulbous expansion forming behind the stricture," as well as to "a marked increase in its length;" both of them decided disadvantages in producing dilatation of the uterus. In this connection I must acknowledge my obligation to Dr. Ephraim Cutter, of Woburn, for a communication from M. Bureau-Riofrey, of Paris, written at the request of Nelaton, containing little, however, in addition to what had already been presented by Dr. Sloan. I am at present investigating the subject, and may therefore yet find occasion to modify my unfavourable opinion. It is possible that the *L. saccharina* of our coast may prove as worthy experiment as the *digitata*, but our most common species, the *longicurvis*, I do not hesitate to condemn; its hollow stem collapses upon drying, and renders futile any attempt at its preparation or use. Careful examination of many other of our rock-weeds has as yet not furnished me any stems of sufficient size and tenacity for the purpose, the nearest approach to it having been in an unusually large and well-developed specimen of *Fucus vesiculosus*. It is to be regretted that there does not yet exist, as I am informed by our justly celebrated algologist, Dr. Durkee, any collection of the giant sea and rock weeds of this vicinity. Prof. Agassiz writes me that those formerly collected by himself have been sent to his brother-in-law, Prof. Braun, Director of the Botanical Garden in Berlin, and there is no series of the character desired in the magnificent herbarium of Prof. Asa Gray, as I learn from that gentleman. A very few moments' inspection of such would at once decide as to what species alone our expectations could rationally be based upon.

<sup>1</sup> Transactions of the Am. Med. Association, Vol. XII., 1859, p. 75; North Am. Med.-Chir. Rev., Jan. to Nov. 1859; Treatise on Criminal Abortion in America, Philadelphia, 1859, p. 70.

The necessity of extreme caution in deciding upon the existence or not of pregnancy cannot be over-estimated. I speak with the more earnestness in this matter, because it is a point to which I have long given special attention. In a somewhat elaborate discussion, some years since, of the actual and relative value of the several signs of pregnancy usually recognized,<sup>1</sup> I was compelled to assert that the foetal pulse is the only one upon which any certain reliance can be placed. This was at variance with the opinion then entertained by my friend, the late Dr. Montgomery, of Dublin, certainly the most eminent authority upon this subject; shortly previous to his death, however, Dr. Montgomery wrote me that he both accepted and indorsed the limitation I had made.

Pregnancy being assuredly absent, it is only requisite to bear in mind the fact that as in other strictures, of the male urethra, for instance, spasmodic action often suddenly ceases upon long-continued gentle pressure, and allows the entrance of the instrument; and that in the frequent instance of complication with uterine displacement, it is at times necessary slightly to push up the fundus uteri and so straighten that organ before such entrance can be effected. The cases where, the uterus and ovaries being perfectly normal, there yet exists obstruction or occlusion of the Fallopian tubes, from the extension of general peritonitic inflammation or otherwise, are still beyond all operative aid, despite Tyler Smith's ingenious but impracticable proposal of tubal catheterization. In such instances, a menstrual discharge may or may not regularly take place; if both tubes, however, are closed, the escape of ova or passage of semen, and consequent conception, are manifestly impossible. In these cases the possibility of peri-uterine hæmatocele, from ovarian hemorrhage attending an attempt at ovulation, must be borne in mind.

There remain but three more classes of amenorrhœa remediable by the surgeon. Of these, one, the sixth in our enumeration, where there is complete occlusion, congenital or acquired, of the generative canal, has been amply treated of by many surgical and obstetric writers. One single point regarding it has, however, been almost universally lost sight of, the liability, namely, in these cases, after so remarkably simple an operation, to a fatal result; yet the explanation of this is very simple, and its indication in practice equally plain.

A small incision, which is generally made through fear of occasioning collapse, should the uterus be suddenly emptied, is almost sure, in consequence of the thick and inspissated condition of the fluid usual in retained menses, to occasion powerful uterine contractions after the flow has once begun; just as these take place after labour, from the presence of clots, shreds of membrane, etc., foreign to the uterine cavity. During these con-

<sup>1</sup> Review of Montgomery's Signs of Pregnancy, North Am. Med.-Chir. Review, March, 1857, p. 249.

tractions, the natural outlet being still impeded, there is no doubt that at times a portion of the retained fluid is forced backward through the Fallopian tubes into the cavity of the abdomen, giving rise to fatal peritonitis. By a free incision of the obstruction, therefore, whenever existing, the uterus should be emptied as rapidly and as thoroughly as possible, even to the extent of completely rinsing its cavity by gentle injections of lukewarm water or soapsuds, and subsequent compression through the abdominal walls, as in a case in which, nearly ten years ago, I assisted my friend, Dr. Malcolm, of Edinburgh.

Previous to this operation, and I am daily more and more inclined to extend the precaution to all that involve the pelvic viscera, it is well to have recourse to the preparatory treatment recommended by Clay, of Manchester, in cases of ovariectomy, giving doses of ox-gall for several days. I am also in the habit, from the analogies obtaining alike in origin, progress and result, between erysipelas, puerperal and surgical fever, and peritonitis, of depending somewhat upon the preparatory administration of muriate of iron.

The next cause that awaits us is where there exist certain general organic lesions of the uterus itself, its walls or their lining membrane. These affections as causing amenorrhœa are few, hyperæmia of the mucous membrane and menorrhagia being here the rule, and can only be ascertained under dilatation by expansible tents, which may unexpectedly reveal, as it has not unfrequently done, the retained remains of some long past or forgotten conception. It is in the former of these cases, especially where following an attack of metritis, that we find the best results from a direct application to the lining membrane of the uterine cavity, either of nitrate of silver and other stimulants in substance, or in solution, by a sponge. This of course must be done by the aid of instruments specially constructed for the purpose;<sup>1</sup> and I would suggest that from galvanism thus locally ap-

<sup>1</sup> I have long been in the habit of using for this purpose an instrument similar to that proposed by Lallemand for the male urethra, but have always been dissatisfied with its size, its complexity, and in recommending it to my friends, its comparatively great cost; the lower portion both of the sheath and the contained stem being necessarily of platinum. Of late, however, I have used an implement of much more simple construction, for the suggestion of which I am indebted to my friend, Dr. Mack, of St. Catharine's, C. W., who seems to have been the first to apply it in practice, although a form closely similar has lately been proposed by Dr. Lente, of New York (*Am. Medical Times*, Sept. 26, 1863). Dr. Mack uses a bullet-probe, coated at its tip with a caustic bead, obtained by dipping the slightly heated point of the probe in fused nitrate of silver. To render the instrument more convenient for constant use, I have supplanted the pincers and slide in the usual closed and jointed caustic holder for the pocket, by a stout platinum wire, probe-pointed, which can be easily kept armed with the nitrate, and will be found upon trial to answer a most admirable purpose; the probe may here be made movable, and inserted within the grasp of the stationary forceps when

plied by wired sponge through a long and curved canula, as has lately been done in the case of the female bladder, a much better effect would be obtained than from any other mode in which it has been applied for amenorrhœa. I would decidedly condemn the use of every kind of intra-uterine injection, for whatever purpose indicated, unless, as I have said, to cleanse the cavity after the operation for retained menses; since they are much less easily controlled in action and, for other reasons, are attended with infinitely more hazard.

The last of the divisions described, those depending upon ovarian inflammation, as in many cases of so-called spurious pregnancy, or upon general organic or functional disturbance, would at first sight seem evidently within the domain of strictly medical treatment. On the contrary, it is by a direct appeal to the uterus itself by one or other of the methods to which we have so often alluded, that we must sometimes combat the existing lesion or functional aberration; in many cases of incipient phthisis, for instance, where there has been no vicarious hemorrhagic discharge, and consequently no error of diagnosis, the disease has thus been warded off, or if already developed, stayed. Any excessive or abnormal flux should of course be met by every means in our power, but these means are often utterly inefficient unless accompanied by treatment directed to the uterus itself; thus diabetes and hæmaturia, leucorrhœa and hæmorrhoids, chronic dysentery, salivation and galactorrhœa, may all, while explaining the existence of amenorrhœa, themselves be kept up by the very quiescence of the uterus; so that, paradoxical as it may seem, to remove the cause it is here also necessary to remove its effect.

To the classes I have now enumerated I must add one other, none the less interesting from its rarity; the instances, namely, where the ovaries are absent, either congenitally or by operation, though the uterus is present. In the latter instance, the case at once declares itself by its history; in the former it is generally only after long study that the diagnosis can finally be reached. As to treatment, we can only content ourselves with that recommended for absence of the uterus, to combat any general or local plethora that may exist, and for the rest patiently to withhold the hand.

HOTEL PELHAM, Nov. 1863.

---

required; at other times being kept in the hollow space of the handle. The instrument thus constructed answers a double purpose, and Messrs. Codman & Shurtleff, instrument makers, of Boston, are now prepared to supply it to the profession.

ART. VI.—*On the Constitution and Source of the Bile.* By THOMAS ANTISELL, Surgeon U. S. V., Prof. of Physiology and Mil. Surgery in the Medical Department of Georgetown College, D. C.

DURING the autumn of last year and the past spring having had the opportunity of making post-mortem examinations of patients who had died of what is commonly known as chronic diarrhoea, and finding the gall-bladder (as might be expected in such subjects) distended with bile, it appeared to me that the application of dialysis to this liquid might determine something new regarding either its constitution or uses, and go to settle some of the obscure and doubtful points in its natural history. It must be admitted that this mode of dialysis has much to recommend it as a means of investigation of animal liquids, for it permits of the examination of the animal fluid while yet in a fresh state, and by using the microscope in connection, enables us to observe the substance itself by the eye and recognize the form. Nothing is more satisfactory than the appearances of chloride of sodium and phosphates of potass or soda, of glycocholate of soda and hæmatoidin, of cholesterine, nucleating cell and epithelium.

The mode of examination was to place the outer liquid in a quinine bottle and suspend the cleaned gall-bladder by a wire hung from a cork with which the bottle is closed. The bladder holding the bile was allowed to remain in the liquid thirty to forty-eight hours, at a temperature of 70°, then taken out, wiped dry on the outside and placed in another vessel similarly fitted up, containing a second liquid; from this, after thirty hours, it was again removed, wiped, and placed in a third and subsequently in a fourth liquid. I have used alcohol (86 per cent.), ether, chloroform and coal oil as the fluids best adapted. In this way, by suspensions for periods varying from twenty-four hours to two days, I have separated all of the component principles in the supernatant bile (when it is allowed to rest), except the mass of epithelium, granular corpuscles, and mucous corpuscles, which do not osmose into alcohol.

The alcoholic liquid, after dialysis of a few hours, assumes an amber-yellow colour, which sometimes deepens to a brown if the amorphous colouring matter of the bile be abundant. The ether and chloroform liquids are usually of a yellow-green tint from the amount of yellow colouring matter held in suspension.

The ethereal liquid contained yellow pigment granules in great abundance, with some fatty globules, margarate soda, mucous corpuscles, and a few crystals of hæmatoidin.

When alcohol is used as the first liquid the great portion of the liquid fatty matter passes into it, and if fresh alcohol be used to replace that deeply coloured, almost the whole of the fat globules may be removed; in

this way, separation between the pigment cells and fat globules may, to a great extent, be accomplished. As the bile is a fluid easily decomposed by exposure to air, the ordinary experimental dialyzer of parchment paper was not employed, the gall-bladder allows permeation to proceed in a very rapid manner and to a considerable extent, and by its use the transfer of the liquid is avoided, the change from the condition when removed from the body a few hours after death is very slight. I therefore used the bladder without any transfer of its contents. I may state here that in the examination of the dialyzed liquids, oxidation is likely to occur, but this may be greatly, if not wholly, prevented, by the addition of creasote to the liquids. I have in this way preserved these liquids for three weeks in the *statu quo* they were in at the commencement of the experiment. Creasote has been recommended by Dr. Beale for this purpose in the examinations of the urine. I recommend it in all examinations of bile.

Having mentioned so much of the mode of examination, I will as briefly as possible state the results under the various heads of investigation.

*Quantity of Bile in Gall-Bladder.*—In ten specimens examined the greatest amount was 28 drachms, and the least 4 (four) drachms; six were above 12 drachms. Those which distended the gall-bladder the most had an unusual amount of common salt present.

*Density.*—Varied from 1020 in least amount to 1010 in that amounting to 3½ oz. As the bile is a very heterogeneous liquid, containing matters in solution and in suspension, the specific gravity gives no real information of the true disposition and mode of escape of the solid matter. When fresh bile is allowed to stand for six hours it separates into two portions—a clear, dark yellow-green liquid, and a substratum of a deep yellow tint and syrupy consistence; by separating these two layers by decantation and evaporation of both in a water bath until no further loss is appreciable, an approximate result of the relative amount of solid matter in each stratum may be obtained. I examined, in this manner, the bile amounting to 28 drachms:—

The solid matters in supernatant fluid = 6.25 per cent.

“ “ in syrupy substratum = 4.15 “

Total solid matters in bile = 10.40 “

*Constitution of these Liquids.*—The two strata alluded to yielded very different results when examined. The clear fluid has a simple composition, faintly alkaline, albumen in solution not precipitable by heat alone, but by the addition of nitric acid along with or after being boiled; the liquid becomes pinkish when heated; it contains all the soluble salts of the bile. The lower stratum contained all the organic and organized substances mentioned further on. Columnar epithelium is the only substance common to both strata.

*Proximate Elements of Bile.*—The results of repeated examinations of these specimens, fluid and deposit, both under the microscope, as well as by



chemical tests, has led to the following list of substances being observed as constituents :—

- |  |                                 |
|--|---------------------------------|
| 1. Epithelium.                                     | 8. Carbonate and Phosphate Soda |
| 2. Mucous Corpuscles.                              | (neutral) and Potass.           |
| 3. Pigment Cells, yellow or greenish.              | 9. Glycocholate Soda.           |
| 4. Brown colouring matter, resinoid and amorphous. | 10. Margarate Soda.             |
| 5. Cholesterin.                                    | 11. Hæmatoidin.                 |
| 6. Fatty Globules.                                 | 12. Hippuric Acid.              |
| 7. Common Salt.                                    | 13. Albumen.                    |

It was not, of course, possible to determine the presence of all of these in each specimen at first, as very many of the substances, from eight to twelve, exist in very different quantity, and if not looked for closely are apt to escape observation altogether. Under the microscope what is usually seen at first are the two varieties of pigmentary matter, the cholesterin and fat globules; the common salt will be found round the margins of the drop under observation, as beautiful Maltese crosses or dagger forms in the natural fluid; in the alcoholic extract the dodecahedron and cube forms of salt are very common.

*Cholesterin and Fats.*—The alcoholic liquid contains some epithelium and mucous corpuscles and abundant fatty globules. The latter is the chief constituent in alcohol. When this liquid stands over one day crystals of cholesterin appear; these are not regular in form, having the angles wanting; regular crystals may be obtained by re-solutions and cooling; the other fatty matters always appear as globules, clear and transparent, being much larger than the yellow-green pigment cells. I have not observed any further change of fats in the alcoholic fluid, although in ether (when cholesterin has been separated by the alcohol) silken tufts or sheafs of margarate soda are recognizable. I may remark that in all my examinations of recent bile, I have never found cholesterin as an ingredient; but when the sample in the field has stood a few hours, or if the bile itself be exposed while recent to the air, cholesterin is then found in small broken plates, similar to what may be removed from the substance of the liver by crushing a few cells and examining under the field.

The cholesterin of bile is either held in solution by the other fatty matter, or it is as yet undecomposed and a constituent of the original fat—one of the steps in the decomposition of which is to form cholesterin. However this latter may be, it is not an evident constituent of fresh bile; when the alkaline nature of the liquid from any cause is diminished, then this substance commences to appear. We can at any time produce it by adding a drop of acid (acetic or mineral) either to bile or to the crushed bile cells, when the fatty matter will be broken up and one of the resulting products is cholesterin. I do not mean to assert that cholesterin is not present, but simply not present in a free state—it is held in solution probably by the

more liquid fats; for inasmuch as cholesterin is not a formation of the liver itself, being the product of decomposition of nerve matter in the blood, and merely separated in the liver—as it is sometimes in serous fluids not sufficiently alkaline—it is reasonable to conclude that its appearance in bile which has been exposed to the air or otherwise oxidized, is an evidence of its pre-existence in a soluble form.

*Yellow Colouring Matter.*—This substance dialyzes the most readily of all ingredients, passing into all of the liquids in the outer vessel; freely into alcohol, more so into ether, chloroform and coal oil; the chloroform liquid is the most convenient for examination, but coal oil preserves the matter unchanged. The liquids have all a more or less green tint, the ethereal liquid being the deepest. Fatty matter always accompanies the colouring matter.

When examined by a power from 300 to 400 times, the structure of this substance is evident; cells globular, deep yellow colour in mass, aggregated in cloudy clusters, the globules having apparently granular contents; these however are fatty matters, as treatment by alkali and acids shows, and this is the reason why it is impossible to separate by dialyses the fatty globules from the yellow-green matter. These globules become of a deeper green on addition of a little nitric or other mineral acid.

It is not further affected by nitric acid, and does not yield the iridescent tints which bile matter affords. It is not soluble in alcohol or ether, but by long contact with these liquids the cell wall becomes broken or collapsed and the fatty matter dissolves in the alcohol or ether; perhaps this is effected by osmose through the cell wall. Alkaline solutions also separate the oil, but in this case the cell wall is dissolved and the liquid assumes a slightly red tint, showing the presence of a protein compound in the cell wall. The yellow pigment is then a globular corpuscle having an albuminous pellicle and fatty substance in the interior. I am unable to state whether the colour belongs to the wall or the central contents.

Lehmann states that this pigment is amorphous and coloured red by acetic acid. In every instance I have assured myself of its cellular character, nor have I observed its being reddened by acetic acid.

*Oil Globules.*—Minute oil corpuscles may be seen in great abundance in the ethereal and alcoholic liquid dialyzed; of all liquids alcohol appears to favour the dialysis most apparently. As there are no free oil corpuscles in bile, its appearance on dialysis is due to the liquid acting on the yellow globules and causing the fat to osmose; the greater portion of the fat, if not all, comes from the yellow pigment cells; globules of fat are also found attached to and escaping from the surface of cholesterin crystals, if the latter be treated by dilute sulphuric or chlorhydric acids; these in a little time disappear and thin prismatic crystals with flat summits are formed in the vicinity. By the actions of these acids on the pigment cells tufts of silky needles of wheat-sheaf form occur scattered through the cloud of pigment.

Margarates are the fats of the pigment cell, while that observed to escape from the cholesterine is a glycocholate; this is proved by treating the field with strong sulphuric acid, when this glycocholic acid is broken up and an occasional hemihedral crystal of *glycin* is formed.

This (distinctive) separation of the two fats must not be looked upon as existing naturally. The cholesterin must have been previously in a fluid form to be secreted, and must have passed through the hepatic cell and most likely through the pigment cells. All the fatty acids must originally have been associated and some of them conjugated.

On the treatment of these fats with acid I have never observed any form like the crystal of *taurine* or of *taurocholic acid*, nor any substance having the reactions proper to that acid; from my own observations I conclude it is not present in human bile, and I am not aware of any competent authority having asserted its presence. Glycocholic acid is, I believe, the true biliary acid in the human subject, and is occasionally found uncombined in bile freshly removed from the recently dead.

Dalton asserts that in human bile there is no crystallizable substance; if by this he means bile in the living subject it may be so, otherwise it is totally at variance with what I have repeatedly observed, so frequently that I do not remember one example in which I did not find it in the dialyzed liquid, where the liquid had been kept for a few days. Among the green pigment corpuscles small prismatic crystals begin to appear—four sided—with flat summits rarely overlapping, each well defined throughout; they are not seen at the same time with the pigment cell, but when the mill head screw is turned slightly, so as to approximate the stage, they then become quite distinct; they average  $\frac{1}{100}$  inches long, and at first view many appear to have the summits bevelled or dihedral, but careful observation will correct this deceptive appearance; they are always found most abundant with the greenish pigment; untreated by reagents they preserve their form for a considerable time; under the influence of acids they disappear, and as stated before, an occasional small crystal of *glycin* appears with a few drops of oily matter around it.

*Sources of the Morphotic Elements.*—No one who has examined the hepatic cell filled with bile, and also the pigment globules of the bile itself, can hesitate in recognizing the latter as the corpuscles of the hepatic cell; they are exactly alike in form, size, colour, and consistence; they both yield fatty matter as well as colouring material, and both by aeration pass from yellow to green; both are slightly soluble in alcohol, more abundantly in ether, chloroform, and coal oil, and they do not undergo any other alteration by nitric acid in the cold than to produce the green tint. I assume it, therefore, that they are one and the same body, and that the contents of the hepatic cells are thus emptied out and delivered by the efferent ducts into the gall-bladder.

Besides these corpuscles, nuclei are seen in abundance loose among the

clouds of pigment and the crystals of cholesterin; these are of larger size than could well be accommodated within the epithelial cells, and indeed these latter show little tendency to change the nucleus, being distinctly recognizable at the attached or smaller extremity; the larger free nuclei, therefore, belong to the hepatic cells, from which they have escaped along with the pigment cells; the cholesterin and other fats also escaping separate in a crystalline form.

From this it would appear that the whole contents of the hepatic cell is carried away; what, then, becomes of the cell wall? We must look upon the *brown* colouring matter as a residue of the cell wall, an altered protein substance, soluble in alkalis, not soluble in acids, assuming a violet, blue, and finally red-yellow tint by nitric acid, and showing all of the reactions by colour which the bile is known to do with reagents; the play of colours of the bile is not, however, monopolized by this body, but is also given by the unaltered and partially disintegrated columnar epithelium floating in the liquid. These can by the microscope be distinctly seen to become purple and blue on the addition of nitric acid.

*Brown Colouring Matter.*—This substance is readily recognized under the microscope, as appearing in masses of various sizes, rarely exceeding that of a blood corpuscle; opaque, except at the edges, where it is of an amber tint, without any trace of structure; not altered by acetic or dilute acids; soluble in alkaline solutions by warmth, and by nitric acid moderately strong, which forms an amber yellow solution with it; producing previously the various tints of colour, blue, red, and brown; the dry mass, heated on platinum foil, swells up and fuses, and in a close tube gives off ammoniacal vapours. It at first, by the reaction, might be mistaken for a resinous substance, but is a true albuminous or protein compound in various degrees of degradation. Under certain conditions the decomposition results in the production of crystals of *hæmatoidin*; at least this latter substance has been found in situations where no other nitrogenous substance was present to produce it. The appearance of *hæmatoidin* has, among other considerations, led physiologists to describe this brown substance as arising from effete blood corpuscles, separated from the portal blood by the cells, and carried down by the efferent vessels; but, after repeated examination, I have never found any appearances justifying this belief; this brown substance is *not found in the hepatic cells nor in the substance of the liver*; it is in the *bile* of the ducts or the gall-bladder that it is detected, and bears all the marks of being the cell wall of old and broken-down hepatic cells whose contents have previously been removed.

*Hippuric Acid—Hæmatoidin.*—These substances I have met with, one example of each, in the twenty specimens examined; I shall not offer any considerations here about their appearance.

This mode of examining the bile by dialysis and microscopic examination of the dialyzed liquids must, if supported by other observers, lead us to

reject the present view of the functions of the liver as a secretion, and of the nature and sources of the bile. We must adopt the view that the bile is simply an excretion, and its formation an act of depuration of the liver, whereby it relieves itself of its own effete parts. This is the view of Dr. Draper when he writes:<sup>1</sup> "I therefore regard the bile as an excretion of materials which are decomposing and ready to be removed from the system." But he and others suppose that the waste materials come from the *cells of the blood*, and that the blood is thus purified by the removal of degraded blood cells in the liver. I do not say this does not occur; but it forms no appreciable amount in the contents of the bile. It is not the blood cells, but the *liver cells* which form the solid matter of the bile; the hepatic cells, their contents, and the degraded cell wall form the great bulk of the morphotic elements; columnar epithelium, in all stages from integrity to decay, mucous corpuscles, and perhaps a little tessellated epithelium, formed the remainder; rare is it to find a trace of a blood cell in any degree of decomposition. It is not from blood cells, then, nor from venous blood directly that the bile is produced, but from a *wearing down of the tissue of the liver*, removing the hepatic cells, in a ruptured and worn-out state, by the only channel through which solid matter could be removed; that is, by the bile ducts. If it be true, as put forth by some, that the open mouths of the ducts directly touch the hepatic cells without any intervening membrane, then the mode of escape is apparent; the cell nearest the extremity of the duct ruptures, and pours its contents down into the latter, and thus leaves a space for other cells in similar effete condition to repeat the process.

If the bile, then, is but an excretion, what is the function of the liver? The explanation which I have given of the constitution of bile, and its probable origin, does not alter in any degree our notions of the action of the liver, which is to purify the portal blood by removing from it the cholesterolin, fatty acids, and pigments by means of the hepatic cells, and also to separate sugar to be restored again to the blood.

In separating the fatty matters it would appear that the structure of the liver itself suffers, and requires to be removed, and it may be that this removal of the hepatic cells, after they have fulfilled their secretory functions to the utmost, by the bile is the *healthy process*, and that fatty degeneration of the liver may consist, not merely in an increased growth of hepatic cells, and their granular contents becoming loaded with oil, but in the circumstance that the cells are not removed as fast as produced; that by some altered condition of wall it is not ruptured and the cell contents delivered into the bile ducts; this is a point to be determined by future observation alone.

<sup>1</sup> Human Physiology, New York, 1856.

The following conclusions are, I think, fairly deducible from the above:—

1. The bile is an albumino-serous liquid, holding diffused organic and organized matter, whose structure and origin may be traced by microscopic investigation.

2. The organized matters are derived from the *hepatic cells*—chiefly its inner granular matter—and from the epithelium lining the bile duct.

3. The fats of the bile are the fats of the bile cell derived from it, and have suffered no alteration, except their escape from inside the cell.

4. The bile contains two distinct colouring matters, the yellow and the brown; both of cellular origin, the latter only in a state of decay.

5. The yellow colouring matter of the bile is an organized body—a cell containing cloudy granular contents, which furnish fatty matter by decomposition; the fatty acids being the margaric and glycocholic, associated with cholesterin and soda; these yellow corpuscles are the yellow corpuscles of the bile cell.

6. The brown colouring matter is a protein compound, an albuminous substance undergoing decomposition, and is probably the remains of the cell wall of the hepatic cell whose contents constitute the matter described in No. 5. It is this brown matter which, by treatment with nitric acid, yields the play of colours used as a test for the presence of bile.

7. The bile contains both the *materials* removed from the portal blood and the *anatomical structures* by which the removal was effected; the latter in a stage of retrogressive metamorphosis.

8. The bile is an excretion—a depuration of the liver directly, of the blood remotely.

As all of the specimens of bile alluded to in this paper were taken from diseased subjects, it may be objected to any inferences drawn that the bile does not represent that in health; as, however, the object of this paper is not so much to describe the chemical characters of normal bile as to show in what form the substances are actually found in human bile, the objection can have but little force in this place.

ART. VII.—*On the Therapeutical Applications of the Solution of the Permanganate of Potash, and of Ozone.* By SAMUEL JACKSON, M. D., Emeritus Prof. of the Institutes of Medicine in the University of Pennsylvania.

In looking over, last spring, Bouchardat's *Annuaire de Thérapeutique*, &c., for 1863, I met with the statement "*L'eau ozonisée anglaise est une dissolution de permanganate de potasse 2, eau 1000,*" p. 95 (that the ozonized water of the English is a solution of the permanganate of potassa, in the proportion of two parts to 1000 of water).

Pincus and others had already established the disinfecting and deodorizing properties of the solution of this salt. These notices suggested to me the thought of testing its therapeutic actions and practical application. My observations were commenced in April; but confined to my office, my investigations were, of course, limited.

Having prepared the solution according to the above formula, I proceeded to ascertain its sensible properties on myself. It had no proper taste, but gave a sensation of coolness in the mouth, leaving behind a slight styptic feeling and dryness, which continued for an hour or more. Taken in the dose of a teaspoonful, slightly diluted, three times a day, it produced no prominent symptoms. It caused no inconvenience; there was some increase of appetite, which, however, was good, and an easier digestion. A diuretic action was obvious; there was no general excitement, increase of temperature or frequency of pulse. A few days after I prescribed the solution in a case of dyspepsia, attended with loss of appetite, disordered digestion, and extreme lassitude. A teaspoonful in half a wineglass of water was directed to be taken four times a day. In a few days the patient called to report a complete recovery.

Four cases of a similar character were treated in the same manner, with a prompt and successful result.

In only one slight surgical case have I been able to test its effects. It was a foul ulcer of moderate size on the left leg, the veins being varicose. The solution was given internally, and directed to be used as a wash several times a day, walking to be avoided as much as possible, and the leg to be kept up. In a week the patient presented himself, the ulcer healthy, rapidly cicatrizing, and his appetite and digestion restored, with improved health.

The following case is of a more decided character. A young medical friend living in the country called to consult me respecting his health. He presented a complete cachectic aspect. His skin dry and cool, face pallid, no appetite, irregular digestion, very feeble, with eczema of hands, feet, and slightly on the face. I mentioned to him my experience and that of my friend Dr. F. Hinkley, Assist. Surg. U. S. A., at Campbell Hospital, Washington (to be noticed immediately), and asked him to give the solution of the permanganate of potash a trial. The following extracts from a letter received about a week after, gives the following results: "A week or more has elapsed since I commenced taking the medicine you gave me, and so far as my appetite and strength are concerned, I know it has done me much good, and I shall continue to take it and give it a fair trial; it has aided my digestion and given tone to my stomach. The quantity of my blood appears to have been increased and its quality improved."

In answer to a suggestion I made in a letter to him, that he was probably too hasty in his conclusions, as the last effects mentioned could hardly have been produced in so short a time, and the facts would be better than

inferences, he states, "My observations were based on the following facts, whether the time be short or long :"—

"My cheeks had more *colour* in them than ever before, for, if you recollect, I have a pale-looking countenance usually. At the time of writing to you, I began to appear plethoric, and felt remarkably well for *me*, whereas, before I took the medicine I was anæmic. From the above facts, I was led to assert that it improved the quality and quantity of the blood. In regard to my present state of health, the eruption on my hands and face has almost disappeared, on which I have used the solution as a wash twice a day; but my feet, on which I have not used it, are in the same condition as they were originally, no change. Other symptoms about as they were when I wrote you first."

The following case has special interest. A gentleman advanced in life had been affected last spring with a persistent sense of burning in the urethra, without discharge or apparent inflammation. He was under treatment by Dr. M. M. Levis, who brought him to my office. After six or seven weeks he was relieved. In September he noticed increased secretion of urine, which compelled him to rise several times in the night. In the beginning of October he called on Dr. Levis, who examined the urine. The specific gravity was 1036; it was found to contain mucus in considerable quantity. October 12th, a consultation was held at my office, when I suggested a trial with the solution of the permanganate of potassa. This was adopted, and no other remedy employed. November 5th, the Dr. called and informed me that a complete cure had been effected. The urine had gradually diminished in quantity, and was at that time entirely normal in character.

The following statement of the weekly examination of the urine was given to me by Dr. Levis.

		Specific gravity.	Quantity in night.	Mucus.
October 12	. . .	1036	3½ pints	Large amount.
" 19	. . .	1033	2 pints	Less amount.
" 26	. . .	1026	1½ pint	Still less.
Nov. 4	. . .	1023	1 pint	A trace.

This gentleman has since made a journey of several hundreds of miles without inconvenience or any return of the affection.

The above are the results of my own observations of the therapeutic action of this remedy. But the most remarkable and almost marvellous effects are its prompt, in most cases, its immediate action in the treatment of gangrenous wounds in the Campbell Hospital in Washington, and the U. S. Jarvis Hospital, Baltimore.

On the 19th May my young friend, Dr. F. Hinkle, of Marietta, Pa., called on me in passing through the city. He informed me he was Act. Assist. Surg. U. S. A., and was then stationed at Campbell Hospital, Washington. In the course of conversation on his medical and surgical experience, he mentioned the number of cases of gangrenous wounds, par-



ticularly in the wounded at the battle of Fredericksburg, the difficulty of treating them, and the ill success of the treatment pursued. I informed him at once of the observations I had been making with the solution of the permanganate of potassa, and proposed to him to give it a trial. Having a conviction that ozone existed in the solution, I was strongly impressed with the belief that it would be found adapted to such cases. The Dr. at once acceded to my proposition, and obtained the salt at Mr. Blair's on leaving my office.

On the 25th of May I received a letter from him of date 24th, in which he informs me that "in reference to the treatment of hospital gangrenous wounds and gangrene, it has already proved beyond all description efficacious. In the action of the remedy you proposed I find more than I expected, and almost all I could wish. I now give you a prominent case as an illustration of its valuable effects and the instant change produced by its local application and its internal administration, upon the general character of the whole case :—

"The description of the case will be limited merely to the immediate action of the solution on the gangrenous wound. Michael Hoyau, Sergt. Co. D. 11th Regt., Mass., aged 35; wounded May 3d, 1863, at the battle of Fredericksburg; admitted to hospital May 8. An extensive gunshot flesh wound had been received at the upper fourth of tibia and fibula of the right leg. The integuments for the space of four inches in length and three in breadth, had sloughed from gangrene, leaving at this date, May 23, the tibia exposed for three inches. The whole of the leg and up to the middle half of the thigh is infiltrated with a putrid sanious liquid and pus. The discharge is nearly a quart per diem.

"The left thigh had been penetrated by a minié ball at the commencement of the popliteal space. A considerable amount of fluid had gravitated back of the knee-joint, which was a source of great suffering. This was relieved by a counter opening giving a free discharge of the fluid. The treatment was commenced May 23, 7 A. M., at which time the situation of the patient was very critical. Pulse was thread-like and 96. Face pallid with anxious expression; head covered with cool sweat. The general temperature below the natural standard; had slept five hours in the last twenty-four. The gangrenous surface looked badly, had a dark green aspect and flabby, exuding a sanious liquid mixed with debris of dead tissues. The odour was pungent and highly offensive. The whole leg and thigh appeared as though melting into this fluid.

"The following treatment was adopted according to your suggestion :—  
R.—Per. mang. potassa 3j, acid. sulph. gtt. xx, aq. comm. Oij.—M. A teaspoonful was given every three hours in a wineglass of water. The gangrenous parts were washed with the solution externally and internally, and charpie soaked in it was kept continually applied, being changed as often as the dressing became saturated with the discharge, or, when that was checked, when it became dry.

"The effects on the gangrenous tissues were instant. The flabby, sloughing and indolent surface immediately dried up, and in a few minutes presented the appearance of a wound to which a solution of nitrate of silver has been applied; or that of a delicate eschar from a slight burn, yet it

gave no sensation of pain. In three hours the odour was greatly lessened, and in less than 24 hours it was barely to be perceived.

"In at least fifteen other cases of gangrene, such as of stumps of limbs, etc., its action was not less efficacious."

The Doctor concludes: "I am already assured that it (the solution of permang. potass) is of the greatest value in cases as above mentioned."

I received from the Doctor a communication inclosing the history of ten cases of gangrenous wounds treated in Jarvis U. S. Hospital, Baltimore, with the solution, and in all the gangrene was promptly arrested. He also describes the mode of application which he has found the most useful from his extended experience.

He also informs me that he is making out a report to the Surgeon General on the permanganate of potassa and its uses. In this he will give the history of the numerous cases—I believe now nearly one hundred—of different affections in which he has employed it. A duplicate, he states, will most probably be published in the *Medical Times*, to which I refer for a full confirmation of what I predicted, from my limited experience respecting the therapeutic action of the solution of the permanganate of potash. I have a strong conviction that science has acquired in this agent a remedy of active powers, of extensive application, easily procured at a small cost, and which can be used without apprehension of risks to be incurred.

From the decided therapeutic action obtained by the practical employment of this solution, especially in the U. S. Hospitals by Surgeon Hinkle, it became a matter of interest to ascertain its active principles. With this view I tested it for ozone. I had prepared Scoutetten's ozonometric starch and papers. The following is his formula:—

Distilled water	.	.	.	.	.	.	.	100 gram.
Finely-powdered starch	.	.	.	.	.	.	.	10 do.
Iodide potassium	.	.	.	.	.	.	.	1 do.

The iodide of potassium is to be dissolved in the distilled water, and the starch powder is to be mixed in the liquid; when the mixture is finished it is to be placed in a porcelain capsule over a gentle fire and constantly stirred with a glass rod until it assumes the pasty consistence of the domestic starch. This may be spread on paper; common letter or writing paper is to be preferred. It is then to be cut into bands and kept in a bottle or box.

I employed at first the recently prepared starch. Small portions were placed on a porcelain capsule and a few drops of the solution mixed with the test. A beautiful blue colour was instantly developed, after a few minutes passing into a deep black. It compared with No. 10 the highest figure of the ozonometric scale. As ozone obtained by the usual process is not very soluble in water, only about 6 per cent., and does not produce its reaction as rapidly or as decidedly as the permanganate solution, this last must contain a much larger proportion than could heretofore have been em-

ployed. Another difficulty was that the former solution was not permanent; it seldom retained its properties over forty-eight hours. In the first trials made I added a few drops of sulphuric acid to keep up a gentle chemical action by which ozone is generated. But this was soon found to be unnecessary, as I ascertained that the permanganate solution exposed for three to four weeks in a capsule to the air lost but little of its power on the ozonometric test.

A short account of the present state of our knowledge of oxygen and its modified or allotropic states is indispensable for the understanding of the mode of action of the solution of the permanganate. In 1842. Schoenbein discovered what he at first supposed was a new elementary body, which from its odour he named ozone. Fremy and Becquerel demonstrated it to be oxygen, the properties of which were highly intensified. This view was generally adopted. Schoenbein, from his investigations, ascertained that peroxide of  $\text{HO}^{\text{ox}}$  could not be produced from either oxygen or ozone, and he assumed hypothetically that there must exist another body in relation to ozone, which he named antozone. They are noted by the symbols  $\overset{\text{ox}}{\bigcirc}$   $\overset{\text{ox}}{\ominus}$   $\overset{\text{ant}}{\oplus}$ . These facts confirm the views of Mr. Faraday, that oxygen is an allotropic body, capable, like carbon, sulphur, and phosphorus, of taking on modified states, differing in their physical and chemical properties.

"The most important distinctive property of antozone  $\oplus$ ," Schoenbein states, "is the readiness with which it unites to water, to form the peroxide of hydrogen." Ozone exists in the gaseous state, and is always existing in varying quantities in the atmosphere; it is also held in solution by water. It is formed over the surface of water, whether the immense extent of the ocean, lakes, or rivers. It is resolved or converted into passive oxygen by the various oxidizing actions it effects on effluvia, and other contaminations of the atmospheric air. It is also the active agent in bleaching and in chemical actions of the animal organism, oxygen being changed into ozone by the chemical actions in constant activity in the pulmonary tissues and capillaries during respiration.

Schoenbein was desirous to obtain antozone in an insulated or free state. With this object, he directed his attention to the set of peroxides, which he named antozonides, expecting to eliminate from them that kind or part of oxygen he supposed to be  $\oplus$  antozone. As a general result, he found "that whenever ozone  $\ominus$  makes its appearance  $\oplus$  antozone and its equivalent,  $\text{HO}-\oplus$ , are present. The rule applies also to a number of organic substances, and occurs during the electrolysis of water, never ozone without the peroxide of hydrogen, or antozonic water  $\text{HO}+\oplus$ ."

After many unsuccessful attempts, he has obtained his object in a most unlooked-for mode, which he communicated in a letter to Mr. Faraday. A dark blue fluor spar has been long known to German mineralogists. It

is remarkable by its property of yielding a peculiar and disagreeable smell when triturated. The nature and cause of this odour had never been settled. The spar occurs in a vein of granite. "A German chemist sent a specimen of it" to M. Schoenbein, "asking him to try his luck in ascertaining the nature of this smelling matter." In this attempt, he showed and proved it to be the antipode to  $\ominus$ , ozone imprisoned for thousands of years, waiting for some one to recognize and set it free. Surprising as it may seem to you, and unique as the fact certainly is, that odorous matter is my insulated antozone, which had so long baffled his researches. "How that subtle matter got into the spar, I cannot tell."<sup>1</sup>

With these facts before us, there can be but little doubt as to the composition and active principles of the solution of the permanganate of potash. Besides the salt, ozone, or active oxygen, and the peroxide of hydrogen, or, as it ought to be designated, antozonic water,  $\text{HO} + \oplus$ , are also present. The last two are bodies endowed with most active chemical properties, which are brought into action on the decomposing organic structure in gangrenous wounds. The disorganizing process is arrested, the organic or vital actions of the surrounding tissues, reduced to the lowest ebb, are roused into activity, and the fluids are renovated by the exciting and oxygenating properties of ozone and oxygenated or antozonic water. The essential conditions of vital or organizing reaction are in this mode locally renewed, and a healing process established.

Taken internally, it enters the blood, and excites the molecular or chemical action of that fluid—an indispensable condition of life. The cessation of those actions is immediate death—it is the mode by which carbonic oxide occasions nearly instant death. These exciting agents, it is most probable, produce also arterial tension, now demonstrated to be the regulator of the capillary or nutritive and vital circulation.

We have the evidence of Gorup Besanez that ozone exerts a kindred action on organic substances. Albumen and casein are changed into products similar to those effected by digestion. Fibrin, it is stated, resisted its action. Should this fact be confirmed, it would show some special chemical distinction between it and albumen, contrary to the observations of M. Cl. Bernard and other physiologists, who regard them as mere transient states of the same substances mutually passing into each other. It had little or no action on urea, allantoin, kreatin, sugar of milk, and hippuric acid—bodies of more stable composition. Bile absorbed ozone and lost its colour; its mucus was decomposed.

As bromine has been found very successful by Dr. Goldsmith and some of our surgeons, in the treatment of gangrenous wounds, it occurred to me that probably its solution in water might develop ozone and antozone similar to the permanganate of potash. I procured a solution of gr. xv to

<sup>1</sup> Philosophical Magazine, 4th series, vol. xxi. p. 88.

3ij of water. With the ozone test it instantly struck a fine blue colour, which in a few minutes became of a deep black. From the volatility of bromine great care is required to preserve it for any length of time. The above proportion of bromine is far too strong for internal use. A formula proposed by Ozanam in 1860 makes a preparation that is permanent, and may be employed internally. It is as follows:—

Bromine, pure	.	.	.	.	.	10 centigram.	2 drops.
Bromide of potassium	.	.	.	.	.	10	do.
Distilled water	.	.	.	.	.	100	gram.
M.							

This solution gives a deep blue with the ozone test, which soon passes into black.

From the similarity between bromine and chlorine, I was led to test the latter with the ozone test. A drachm of chloride of lime was put into a pint bottle and a few drops of sulphuric acid added; in a few moments the bottle was filled with chlorine. A dried test paper was then introduced; it assumed in a few moments a bluish colour; when the paper was moistened it instantly changed into the blue colour, which soon became black. When the moist paper was introduced these changes took place in the shortest period.

The test papers acted on by the solutions of permanganate of potash, bromine, and chlorine, exhibited equal intensity of colour; they could not be distinguished.

These facts appear to indicate ozone or antozone as the active principle of the solution of bromine as well as of the permanganate of potash and of chlorine.

ART. VIII.—*Case of Amputation at the Hip-Joint; illustrated by an engraving.* By S. D. Gross, M.D., Professor of Surgery in the Jefferson Medical College, and one of the Surgeons of the Philadelphia Hospital.

AMPUTATION at the hip-joint has been so often performed as to render it unnecessary to enter into any minute details respecting the present case, although one of great practical interest. It is proper to premise that the notes of this case were drawn up by Dr. W. W. Keen, Jr., my private clinical clerk, now assistant surgeon in the United States Army.

Margaret Thompson, aged 9 years, in November, 1861, was scalded over nearly the whole of the left foot, leg, and thigh, and also on the right knee and leg, followed by extensive exfoliation of the epidermis. The affected surface, instead of healing, remained inflamed and painful. When she entered the hospital, five months before the operation, she was extremely thin, feeble, pale, and anæmic. In January, 1862, when I took charge of

her case, she was in the most deplorable condition, frightfully emaciated, and in so much suffering as to require the constant use of anodynes. Fortunately, however, her appetite was pretty good; she eat heartily, and drank daily six ounces of brandy. The left limb was so much retracted that the knee nearly touched the chin, and the joint itself was almost completely ankylosed. In addition to this it was greatly withered, the thigh being hardly as thick as an ordinary wrist, and covered from the ankle nearly to the hip with one continuous scab, of a brownish colour, from two to four lines in depth, and exhaling the most horrible odour.

Convinced that she could not survive many weeks longer in this condition, I requested a conference with my colleagues in regard to the propriety of amputation at the hip-joint. After taking into view all the circumstances of the case, only one of them consented to share with me the responsibility of an operation. I had myself, I confess, very little hope of success; still, the knife afforded the only chance, and I therefore determined to employ it. The stench exhaled from the limb was of itself sufficient to destroy her; for no means could be found to correct it in her painful and exhausted condition.

The operation was performed in the presence of the clinical class of the hospital, on the 29th of January, fourteen months after the receipt of her injury. The little sufferer, placed under the influence of brandy and chloroform, was apparently more dead than alive, so frightfully thin and exsanguineous was she. Important aid was rendered me during the operation by my colleagues Dr. Agnew, Levis, and Kenderdine, in compressing the aorta and femoral artery, and in securing the divided vessels. Two flaps were formed, an anterior and a posterior, with a narrow catlin, the whole proceeding occupying less than twenty seconds. Altogether not two ounces of blood were lost. Brandy was freely administered as soon as consciousness was sufficiently restored; and in about three hours the flaps were carefully approximated by wire sutures and adhesive strips. Morphia was given to allay pain and promote sleep. Milk punch and animal broths constituted the chief diet, and were well borne by the stomach.

Margaret slept comfortably the night after the operation, and rested well all next day, as well as the following night, taking an abundance of nourishment.

*February 1.* This morning Dr. Keen made the following entry: "Margaret is doing admirably; she is better than at any time since the operation—in fact, she is bright and cheerful. The wound is looking well; there is slight suppuration, but no evidence of erysipelas, which has been prevalent for some time in the house. The bowels are quiet; the sleep and appetite are good, and brandy is administered freely."

*5th.* The case is progressing most satisfactorily. The wound, dressed two days ago, looks healthy, and discharges very slightly.

*8th.* The bowels were moved spontaneously for the first time two days ago. As there have been neuralgic pains in the stump for the last few nights, two grains of quinia were ordered to be given thrice daily. Under this treatment the suffering rapidly subsided; and the next night she enjoyed five hours of uninterrupted sleep. She eat eighteen oysters yesterday, and takes daily nine ounces of brandy in the form of milk punch.

*11th.* The wound has all healed, except a small space at the centre, where there is a little suppuration and bagging of the lower flap. The child is still greatly emaciated, but she is cheerful, and has an excellent appetite. She has been for some days taking quinia and tincture of iron.

She consumes nine ounces of brandy every twenty-four hours, and is manifestly improving in strength and colour.

15/*h*. The wound is nearly healed; all the sutures have been removed, and several of the ligatures have come away.

From this time no regular record was kept of the case. The child continued steadily to improve in health and vigour; the discharge from the wound gradually ceased, and the stump ultimately assumed a solid, healthy aspect. The ligature of the femoral artery did not drop off until nearly three months after the operation.

Nearly two years have now elapsed since this case fell into my hands. When Margaret was last seen, about four months ago, she was fat and stout, with a good complexion, but was evidently labouring under serious valvular disease of the heart. The stump, represented in the annexed engraving by



Mr. Seabald, was well formed, and in excellent condition. The right limb was much improved in muscular development and strength, but still somewhat stiff at the knee. In a word, the whole appearance of the girl was in the most striking and gratifying contrast with that which she presented prior to the amputation.

The knee-joint of the amputated limb had been partially destroyed by inflammation. The cartilages were highly vascular, as were also those of the great trochanter and the head of the femur, the latter of which was covered by plastic deposits, partly organized, and, at one point, slightly ossified. The compact tissue of the femur, tibia, and fibula was abnormally thin and soft, while the areolar substance was everywhere remarkably red and injected. The periosteum exhibited no appreciable alterations.

The circulation of the limb in this case was easily and effectually controlled by digital compression of the aorta, owing to the very flaccid and empty condition of the abdomen. As an additional security, compression was also applied to the femoral artery at Poupart's ligament.

For much of the success of the after-treatment of this remarkable case, I am indebted to my former clinical assistants at the hospital, Drs. Maury, Lineweaver, Jamar, and Allen, who exercised the most tender vigilance and care over the little patient during the critical period of her confinement.

---

ART. IX.—*On Gunshot Wounds of Arteries. Traumatic Hemorrhage and Traumatic Aneurism.* By JOHN A. LIDELL, M.D., Surgeon U. S. Vols.

CASE I. *Gunshot wound dividing the axillary artery and injuring the brachial plexus of nerves of the left side; circumscribed traumatic aneurism occurring on the twenty-first day; ligature of the subclavian external to the scalenus; death forty-six days afterwards from exhaustion.*—Capt. John F. Jordan, Co. "B" 13th Va. Cavalry (Rebel), aged 31 years, and of sound constitution, was admitted to Stanton Hospital June 23, 1863. He had been wounded two days before (June 21) in an action near Middleburgh, Va., by a shot from a carbine. The bullet, which by the way was conical in shape, penetrated the pectoralis major muscle of the left side, at a point on a level with the axillary artery, and about one and a half inches from the margin of the armpit, passed directly backwards beneath the shoulder, wounding the axillary artery together with the brachial plexus of nerves, and escaped behind. Patient said he lost a great deal of blood immediately after the wound was inflicted; so much, indeed, that he fainted; the hemorrhage then ceased and had not since returned.

On admission to hospital, his left arm exhibited some swelling, cedematous in character, and its inner side was ecchymosed nearly down to the elbow-joint. It was also paralyzed, the loss of both sensibility and mobility being complete. There was no radial pulse in that arm, and pulsation could not be detected in the brachial or any other artery thereof. From this we inferred that the axillary artery had been severed by the bullet. The temperature of the limb was not below the normal standard; on the contrary, we thought it to be somewhat warmer than the limb of the opposite side.

There was nothing remarkable in the appearance of the wound. The patient's general condition was good. He did not look as if he had suffered from hemorrhage. The bowels were constipated: Ordered a saline purge together with a spare diet; and with a view to lessen the tendency to secondary hemorrhage, he was directed to remain quiet in bed, to exert himself as little as possible, and to have ice applied constantly over the injured artery. He was also directed to take morphia at night if necessary to procure rest.

Under this treatment the patient progressed without an unfavourable symptom; the wound cleaned itself and closed up in a satisfactory manner, and we congratulated the patient on the prospect of his getting well without suffering the terrible secondary hemorrhage which frequently attends



gunshot wounds of the axillary artery. The limb continued to be completely paralyzed as to motion, but sensation had gradually been restored to the fingers, hand, and forearm.

On the 12th of July (morning), we noticed the appearance of a small, rounded, circumscribed swelling, of the size of an egg, at the seat of injury to the artery. The scar of the anterior orifice of the gunshot wound was exactly on the summit of the convexity of the swelling, as the patient lay in bed. The tumour was tense in feel, and pulsated distinctly and synchronously with the heart. There was, however, an entire absence of the aneurismal thrill and the aneurismal bruit. By compressing the subclavian artery against the first rib, the tumour became soft, much less in size, and ceased to pulsate; on withdrawing compression, the tumour speedily filled up, became tense and pulsated again. Patient stated that during the preceding night he felt something "give way" in his left armpit, while attempting to change the position of that arm by the aid of the right hand. During the day the aneurism increased rapidly in size, and in the evening was fully twice as large as when first noticed in the morning.

July 13. The aneurism continued to increase steadily in size, and in the evening was about half as large as the clenched fist.

14th. The aneurism had grown but little since previous day; it was still rounded, distinctly circumscribed, and somewhat oval in shape; by compressing the subclavian, it ceased to pulsate, became soft and much shrunken, but the prior condition of things was restored speedily on withdrawing compression; as on a previous occasion, there was still no thrill or bruit.

*Diagnosis; circumscribed traumatic aneurism of the axillary artery.*

—From the entire absence of pulsation in all the arteries beyond the aneurism, which existed even at time of admission to hospital, and the complete want of thrill and bruit in the aneurism itself, we believed that the aneurism had been developed from the proximal end of the severed artery, and that opinion was strengthened by the fact that the swelling had not expanded outwards and downwards into the armpit, where there was but little in the anatomical structure of the parts to obstruct its growth, any more rapidly than it had done in another direction, where it was covered over and bound down by the pectoral muscles. The swelling had expanded so equally in all directions that the scar of the anterior wound still remained exactly over the centre of the tumour, as when we first saw it.

The aneurism was so distinctly circumscribed that, although its origin was traumatic, it was deemed advisable to attempt a cure of it by the Hunterian method. As there was not sufficient space to secure the artery below the clavicle without opening the sac, I proceeded to tie the left subclavian artery external to the scalenus, on the afternoon of that day (July 14). The patient being under sulphuric ether, that operation was performed without difficulty, by the ordinary method. On tightening the ligature, the tumour ceased to pulsate, shrunk a good deal, and became soft. The left arm was directed to be wrapped in cotton wool, and to be kept warm by the further aid of bottles of warm water to be renewed from time to time as occasion might require. A full dose of morphia was prescribed. He was enjoined to preserve the recumbent posture and to avoid exertion of every kind. A milk diet was allowed.

15th. Patient had a comfortable night; temperature of arm not diminished; discontinued the warm water.

16th. Patient doing well in every respect; arm warm, colour thereof good; discontinued the cotton and wool.

17th. Bowels being confined he took magnès. sulph. ʒj.

19th. Aneurismal sac opened spontaneously last night, through the anterior scar of the gunshot wound, and discharged two or three ounces of very dark-coloured blood mixed with pus. Suppuration of the sac had been threatened ever since the day after the operation. He was allowed a full diet.

20th. A moderate discharge of old blood and pus, accompanied with a gradual diminution in the size of the aneurism, and but a moderate degree of inflammation of the sac, continued on this, and several days following, the patient's general condition being unexceptionable all the while.

27th. The aneurismal swelling had entirely disappeared; suppuration of the sac, moderate in quantity, still continued, the pus being of a good quality.

Aug. 1. *The ligature separated, and was removed to-day without the occurrence of hemorrhage, or any other difficulty.*—Discharge from sac good in quality, and steadily diminishing in quantity; noticed some excoriation at the inner side of the left elbow, occasioned probably by pressure, the patient having followed very closely the injunction to keep as still as possible, in the recumbent posture; directed a stimulating plaster to be applied, and the pressure to be removed to other situations, by arranging pillows.

5th. Discharge from sac had subsided to a small quantity of healthy pus, and the orifice was manifestly contracting. We hoped that adhesion of the sac was taking place. Patient's condition seemed to be favourable in every respect, except that he had been losing flesh for several days past, without obvious cause. For want of any other reason, we attributed it to the extreme heat of the weather, the temperature both day and night having been unprecedented ever since July 25th, the mercury at mid-day ranging from 92° to 100°, and seldom falling below 80° at night.

6th. A profuse flow of blood from the sac came on this morning, without warning, the loss of blood being so rapid as to threaten speedy death. The officer of the day was close at hand, and stopped the bleeding, by injecting about one ounce of liquor ferri persulph. into the bottom of the sac, through a female catheter, introduced for the purpose. The hemorrhage ceased immediately. We had been emboldened to use the persulphate of iron freely, in this way, because we had a few weeks before (June 22d) stopped a troublesome secondary flow, in alarming quantity, of arterial blood, from the cavity of a large abscess, associated with gunshot fracture of the right thigh, by injecting about two drachms of liquor ferri persulph. through a catheter, carried into the neighbourhood of the supposed source of the hemorrhage, a branch of the profunda artery, and no unpleasant effect of any kind followed it. Again, about the same time, we had been troubled to manage a case of general oozing of blood from the cut surface of a thigh, amputated secondarily for gunshot injury. After trying exposure to the air, ice-water, and even ice, without effect, we stopped this bleeding immediately, by covering the end of the stump with pledgets of lint soaked in liquor ferri persulph. Aside from pretty severe pain, which soon subsided, no unpleasant consequence of any kind followed. We did not discover any evidence of even the feeblest action, as an escharotic, and have indeed since thought that the case progressed better than other amputations of the same class.

In consequence of the secondary hemorrhage, and the efforts to repress it, the aneurismal sac became filled up again to the original size.

10th. Another severe hemorrhage occurred from the same orifice ; it was readily stopped by again injecting persulphate of iron in solution.

11th. Profuse hemorrhage occurred to-day, through the opening of the posterior orifice made by the bullet, after it had been healed for more than a month. This bleeding was also suppressed immediately, by injecting liquor ferri persulph. through a catheter. After this, there was no more hemorrhage. During the next few days, he seemed to rally from the depression produced by these repeated losses of blood. He was ordered to have wine, and anything in the line of supporting treatment that he would take.

18th. The aneurismal sac has again suppurated, and there is a profuse discharge of dark-coloured, and very offensive pus.

25th. Patient failing rapidly ; suppuration very profuse, and extremely offensive in character.

29th. He died, worn out with the suppuration and the hemorrhage, forty-six days after the operation, and twenty-eight days after the ligature came away.

*Autopsy 18 hours after death.*—Emaciation extreme ; rigor mortis moderate ; a large, elongated cavity, with ragged, dark-coloured walls, occupies the original seat of the aneurism, and extends beyond it, outwards into the axilla ; the axillary artery is found to have been severed obliquely by the bullet, about one and one half inches above its termination in the brachial ; the divided extremities are separated widely apart (to the extent of about three inches) ; the distal end appears to have been pushed away from the proximal end, either by the original aneurism, or the subsequent hemorrhages and suppuration ; the proximal end is oblique, and closed, while the bruised and lacerated portion of it appears about to be cast off by the ulcerative process, as a distinct line of demarcation has been formed ; the distal end is oblique, and unclosed, but the calibre of the artery is contracted down to about a line in diameter, and it is blocked up by a coagulum three-eighths of an inch long ; the branches of the axillary given off above the point of injury, especially the superior thoracic and the acromial thoracic, are much enlarged ; the axillary vein is greatly diminished in size about the track of the bullet, but it is still pervious ; the brachial plexus of nerves was also wounded by the bullet, all the trunks being cut off, except that of the musculo-spiral and circumflex nerves. The extremities of the divided trunk (proximal) were somewhat bulbous.

At the seat of the operation, the wound, which at one time was nearly closed, is now open quite down to the artery at the point of ligation, the new granulations having been reabsorbed to that extent ; but the artery, for a distance on each side thereof, is surrounded by a dense mass of new cellular tissue, so thick and dense as to make it a little difficult to get at and remove the specimen without injury. On the proximal side of the ligature the vessel is blocked up to a distance of about five-eighths of an inch ; on the other side of the ligature it is blocked to the extent of about two-eighths of an inch.

In the cavity of the thorax we find old pleuritic adhesions on both sides, and old tuberculous cicatrices at the apex of each lung, but both lungs are now entirely free from tuberculous deposits ; abdomen not opened.

The following specimens belonging to this case were sent to the Army Medical Museum, September 10th, 1863.

1st. The ligature.

2d. The artery, extending from a distance within the seat of ligature, down to the point of severance by the bullet, showing effects of ligation, etc. etc.

3d. A piece of the artery from the distal side of the wound, showing its diminished calibre, obstruction, etc.

4th. The brachial plexus, showing those trunks which were severed by the bullet.

*Traumatic Hemorrhage.*—This case deserves more than a passing notice. It illustrates several surgical themes of great interest, and therefore will repay attentive study. In the first place, it invites our attention to the subject of hemorrhage, and especially to that form of it which is occasioned by wounds of the larger arteries. The principal danger attending the wounds of all arteries arises from the loss of blood, and the greater danger which attends wounds of the larger arteries is due to the fact that the loss of blood from them may be so rapid as to destroy life before effective assistance can be obtained. Incised wounds, severing any of the larger arteries, are always speedily fatal, unless the hemorrhage chances to be arrested by art. Thus, the suicide cuts his throat, so as to divide the carotid artery, or gashes his thigh, so as to sever the femoral artery; or the homicide stabs his victim in such way as to cut across the axillary artery, and he bleeds to death in from five to ten minutes, unless the hemorrhage be retarded or arrested by extraneous aid. In all such cases, nature, unassisted, is powerless to prevent a fatal result.

But, such an issue does not necessarily follow gunshot severance of an artery belonging to the class above mentioned, as the history of Jordan's case abundantly proves. The autopsy showed that the carbine-shot had divided the axillary artery completely, and the patient's statement showed that the hemorrhage from the wound—which was very profuse at the outset—soon ceased spontaneously, and did not recur. Moreover, the loss of blood was not so great as to be noticeable in his appearance two days afterwards, when he was admitted to hospital. Now, it becomes a matter of surgical interest to inquire into the reason why nature, unaided, can stop the hemorrhage from a large artery, severed by a gunshot, and cannot stop it in case of clean division by a cutting instrument. The foregoing case will, I think, if studied closely, afford a satisfactory explanation. The carbine shot bruised and lacerated the coats of the artery, as it passed athwart them; the roughly-divided arterial tunics retracted within the sheath, and contracted upon themselves, immediately, by virtue of the elasticity of the middle coat, and thus a lodgment for a clot was formed in the bruised extremity of the artery. But, while this was taking place, the patient lost blood so rapidly as to become faint (he said he fainted), whereby the tendency of the blood to coagulate (coagulability) was increased, the volume and firmness of the clot being proportionally increased, and the force of the circulation diminished all at the same time. In this way nature, unas-

sisted, plugged up the severed artery with a coagulum, so as to stop the effusion of blood speedily. It appears, on the other hand, that in case of the severance of a large artery by an incised wound, the hemorrhage does not cease spontaneously, for want of a place of lodgment for a coagulum, sufficient to stop up effectually the bleeding orifice; and, moreover, that spontaneous occlusion of an incised wound of an artery, by coagulum, is never effectual to stop the hemorrhage, except the artery be a small one, such as the anterior temporal (branch), and even then complete division is essential to success, as observation has abundantly shown. Observation has also shown that the greater the amount of the contusion and laceration inflicted upon an artery, the smaller is the quantity of the hemorrhage, other things being equal, or, in other words, that the more an artery is bruised and torn, the more readily is a lodgment afforded for such a coagulum as will restrain bleeding; *vide* cases of limbs torn off by cannon shot and machinery, scattered everywhere through the annals of modern surgery.

There is another interesting feature connected with the topic under consideration. This man was struck by a carbine shot fired at short range, the projectile having therefore the maximum of velocity, or nearly so, and consequently the extremities of the severed artery were contused and lacerated proportionably less than they would have been by a similar bullet moving at a slower rate of speed. This view is corroborated by the appearance of the wounds of entrance and exit, and by the cleanness with which the trunks of the brachial plexus were divided. When exposed at the autopsy they looked as if they might have been cut off with a knife, instead of a gunshot. It is, therefore, clear that the artery was not severed under circumstances the most favourable for affording a lodgment to the clot, and for the spontaneous arrest of the hemorrhage. Now it becomes highly probable that the result achieved by nature, unaided in this case, is not at all an exceptional one; and, viewed in this light, the examples of similar wounds of the femoral and other arteries, not fatal from primary hemorrhage, reported by Guthrie and others, lose the surprising features of their character, and become simple illustrations of what nature habitually accomplishes, under similar circumstances.

These remarks apply only to cases of hemorrhage occurring from *completely divided arteries*. If, on the other hand, the artery be but *partially divided*, for example, to the extent of one-fourth or one-half its circumference, the hemorrhage becomes much more dangerous in character. For retraction within the sheath being impossible on the part of the arterial tunics, the orifice in the artery gapes open, and assumes a round or oval shape, according to the extent to which the division has been carried, which allows a free escape of the blood, and presents no facilities for plugging up the bleeding orifice with an efficient coagulum. .

In this way hemorrhage from small arteries, when but partially divided, may become troublesome to stanch, and even fatal to life, if the exact cha-

racter of the wound of the artery is not recognized in season. This statement obtains whether the wound be incised or gunshot, in both cases alike. I have seen instances of obstinate primary hemorrhage, occurring in connection with partial division by musket-shot, of such arteries as the radial, the ulnar, and the anterior tibial. Now either one of these arteries would not have bled much, if at all, provided it had been completely divided by the bullet in the first instance.

It is well known that in cases of hemorrhage from partial division with a cutting instrument, of such an artery as the temporal, the bleeding can be stopped at will, by completing the division and applying a moderate amount of pressure. The rationale of arteriotomy as an operation is founded entirely upon this knowledge.

With regard to the *surgical treatment of hemorrhage from an artery partially divided by a gunshot*, I believe from observation that the best course to pursue is, in case the artery be a small one, first to try the hemostatic effect of pressure, evenly and carefully applied at the seat of injury to the vessel, and if the bleeding continue or recur, then enlarge the wound and tie the artery, on both the proximal and distal sides of the orifice. But if the bleeding artery be a large one, there is then no time to be lost in trying pressure. The track of the bullet should without delay be dilated by incision, so as to expose the wounded vessel, which should then be tied, both on the proximal and distal side of the aperture in it, after the method recommended by John Bell, and earnestly enjoined by Guthrie. For such cases I believe that any treatment less thorough than this, even when promptly applied, is inefficient and reprehensible, because it exposes the patient's life to unnecessary danger. If the bullet pass through a limb in a very oblique direction, wounding its principal artery, it may be deemed advisable to cut directly down upon the vessel at the seat of injury to it, instead of dilating the track of the bullet; but such a case has never come under my observation. I can, however, readily conceive that it may occur, and if it should I would have no hesitation in cutting directly down upon the vessel and securing it by two ligatures, one placed on the proximal, and the other on the distal side of the wound in it, although the original injury would thus be complicated with an additional wound of operation: for simple incised wounds of the extremities, even when very large, almost always do well. Next to the application of ligatures to both the proximal and distal sides of wounds of arteries, I consider it a matter highest in importance in all cases of hemorrhage from a probable lesion of a large artery, to *dilate the wound without delay, and secure the bleeding vessel by ligature*. If reliance be placed upon plugging up the track of the bullet, and upon applying pressure on the outside, and such treatment be put in practice where a large artery has been wounded, the patient will be likely to die, sooner or later, exhausted by repeated hemorrhages, and infiltration of the parts, bordering upon the wound, with blood; while, at the

same time, if the hemorrhage had been treated by tying the artery on the principle above advocated, recovery would have taken place without difficulty.

But at the same time that we are prompt in taking whatever measures may be advisable to arrest hemorrhage from a wounded artery, we should carefully abstain from performing any operation upon a wounded artery for hemorrhage, unless it bleed at the time; for it frequently happens, even in apparently unpromising cases, that a hemorrhage stopped spontaneously or by simple means does not return. To ligate the artery in such a case would be to inflict unnecessary torture upon the sufferer.

*Aneurismal Bruit and Thrill.*—Again, this case is unique, in that the aneurism, which made its appearance July 12th, was developed from the *extremity* of a severed artery. I certainly have never seen, and do not remember ever to have heard or read of another case, where a pulsating tumour filled with blood and communicating with an artery was developed otherwise than in the continuity of the bloodvessel. This terminal development of the aneurism probably accounts for the absence of the aneurismal bruit and the aneurismal thrill, as this origin does not, under ordinary circumstances, seem to admit of such disturbance of the undulations in the circulating blood as to cause them to recoil upon each other, thus destroying the rhythm of the undulations, and producing discords (jarring vibrations) cognizable by the senses of touch and hearing. On the other hand, if an aneurism of the variety called fusiform<sup>1</sup> be developed in the continuity of an artery, the rough, warty, and granular lining of the expanded vessel appears to be capable of producing such a disturbance in the wave-like current of the passing blood as to grate harshly on the touch and ear. But in order for this to take place it is necessary that the blood should pass beyond the aneurism through a continuous tube, otherwise the current would be stopped in the aneurism, or would not move with sufficient velocity into and through the aneurism to produce a thrill or a rasping sound.

In the variety of spontaneous aneurism denominated, by Mr. Erichsen, *sacculated*, the murmur and thrill are generally quite as well marked as in the variety denominated *fusiform*. But here the disturbance in the undulation of the circulating blood is produced in a different manner. In the case of the *sacculated* aneurism, at each contraction of the heart a portion of the blood contained in the affected artery is forced out through the hole, aperture, or opening in its side into the aneurismal pouch connected with it, and thus the rhythm of the undulations is effectually broken at the point of communication between the vessel and the aneurismal pouch, and likewise throughout the pouch itself. The undulations are broken, not by the roughened lining of the expanded artery, but by the outflow of a stream of blood from the side of the vessel, at a right angle with the general direction of the current of the blood into the aneurismal pouch.

<sup>1</sup> We follow Mr. Erichsen's classification of aneurisms.

Inasmuch as the structure and shape of no two aneurisms is exactly alike, it follows that in no two cases are the undulations of the circulating blood disturbed in precisely the same manner, and to precisely the same extent; and furthermore, that in no two cases are the tones of the aneurismal bruit precisely the same. In fact, clinical observation has shown not only that this bruit is never exactly the same in different cases, but that it exhibits a very wide range as to tone, varying from a harsh rasping sound on the one hand to a faint bellows murmur on the other.

Besides, on account of the abrupt termination of the current of the circulating blood in the aneurismal sac, from want of continuity in the vessel beyond it, the aneurismal thrill and the aneurismal bruit may be absent, because the sac is filled up with coagulated blood, so as to take part no longer in the undulations communicated by the heart to the whole vascular system. This happens most frequently in the variety of aneurism called false (sacculated), and then the tumour continues to pulsate, not on account of any movement in its contents, but on account of the impulse communicated to it, externally, from the artery. But the aneurismal bruit and thrill were not absent in Jordan's case, because the sac was filled with coagulated blood, for, on stopping the flow of blood into it by compressing the subclavian artery over the rib, it became much shrunken and soft in a little time, and on withdrawing the compression, it gradually became filled up to the original size, and tense again, thus showing conclusively the liquid character of its contents.

Again, a narrowness of the aperture in the artery did not cause the aneurismal bruit and thrill to be absent, for the tumour pulsated strongly and expansively outwards in various directions from its centre, which decidedly implied that free communication existed between the cavity of the aneurism and the artery. Furthermore, I think that the blood would be likely to flow into an aneurism developed from the end of a divided artery, with a noise (bruit) synchronous with the contraction of the heart, if the vessel were suddenly narrowed, constricted, or otherwise obstructed at its point of termination in the aneurism, for such obstruction would disturb the equability of the flow of the blood past it, to a greater or less extent, according to the amount of the obstruction, and would, to the same extent, disturb the wave-like motion of the blood at and beyond the point of obstruction. It, therefore, appears to be philosophical to infer, that, in the case of Jordan, the extremity of the axillary artery from which the aneurism was developed was not obstructed to any important extent.

*Pathology.*—The pathological history of the aneurism was probably as follows: its development commenced by the yielding of the yet imperfectly organized plug or scar at the end of the cardiac portion of the severed artery. As the blood pushed the scar gradually before it, out in every direction, the cellular tissue, already more or less thickened by inflammatory action, in and about the track of the bullet, was gathered together by



degrees before it, so as to form a sac of considerable thickness and strength. As the tumour grew larger and spread beyond the limits of the inflammatory exudation, the uninjured areolar tissue, also, was progressively condensed on the exterior of the forming sac, and thus it happened that the walls of the sac remained strong, and retained about the same thickness, notwithstanding the comparatively rapid development of the swelling.

We may state, in a general way, that the walls of the aneurism were formed by the coalescence of cellular tissue, a part of which had been more or less consolidated by plastic exudation thrown out in its meshes. The singularly rounded shape and distinctly circumscribed character of the swelling were probably largely due to the thickening of the areolar tissue in the gunshot wound, more especially in the neighbourhood of the ends of the severed artery.

Areolar tissue, coalescing in this way to wall in and circumscribe a gradual outflow of blood from an artery, or to form an envelope for a chronic swelling of any kind, generally exhibits but little tendency to ulceration, and, therefore, I would not have been inclined to hasten to operate, had it not been that the scar, in the track of the bullet, was likely to give way, in a short time, on account of the constant outward pressure of the blood in the aneurism.

*Treatment.*—Another important topic suggested by this case is the *surgical treatment* appropriate for *traumatic aneurism*. All cases of this disease are classified under the one or the other of two heads: 1st, *diffused traumatic aneurism*, and 2d, *circumscribed traumatic aneurism*. With regard to the *diffused* form, there can be no doubt as to the best course to be pursued. The artery should be exposed at the seat of injury by an incision sufficiently free for the purpose, and a ligature be applied to both the proximal and the distal side of the bleeding orifice. It should be treated on precisely the same principles as any other artery of the same magnitude which may happen to be wounded and bleeding. For, in the one case the blood flows out through an external opening, and in the other case it flows into the areolar tissue, where it accumulates for want of an external opening through which to escape, but so far as the lesion of the artery is concerned, there is no essential difference between them. After securing the vessel by ligatures, both proximal and distal, the cavity of the diffused aneurism should be laid freely open, and all the coagulated blood should be carefully removed, otherwise offensive and tedious suppuration will be likely to occur.

With regard to the treatment of *circumscribed* traumatic aneurism, there is, however, more room for difference of opinion. This disease presents the same general features as the false variety<sup>1</sup> of the spontaneous aneurism, and, in many instances, especially those cases which progress but

<sup>1</sup> After Erichsen's classification.

slowly, closely resembles it in every respect, except that the origin is traumatic, and that no arterial coat enters into the formation of the sac. This close similarity in appearance naturally suggests to the surgeon a similarity in treatment, and hence it has been recommended by high authority that the circumscribed traumatic aneurism should be treated by ligating the vessel before it reaches it, or, in other words, by cutting off its supply of blood, and trusting that a cure will take place in the same way as in spontaneous aneurisms. But it sometimes happens that a cure fails to take place, for the following, among other reasons: 1st, the occurrence of *gangrene* in the parts beyond the aneurism, and 2d, the *spontaneous opening of the aneurismal sac* followed by *secondary hemorrhage* and *exhausting suppuration*. Now, it seems to me that the risk of the occurrence of a fatal result in either of these ways may be considerably diminished by laying open the sac freely, and tying the vessel at the seat of injury, placing a ligature on both the proximal and distal sides of it, instead of securing the vessel by a single ligature at a remote point. There is no doubt in my mind, that by this operation the danger from the spontaneous opening of the sac, with its subsequent hemorrhage and exhausting suppuration, would be greatly diminished, if not almost entirely removed; for the sac having been opened and emptied of its contents, would be converted into a simple wound, and would be likely to heal kindly from the bottom; and the distal part of the artery being secured by a ligature, the blood could not escape backwards into the open sac; also the proximal part of the artery being secured by a ligature applied directly to it, the blood could not flow from it into the open sac, on the establishment of the collateral circulation with vessels given off from the artery between the seat of deligation in its continuity and the aneurism.

Again, the risk of the occurrence of gangrene would be diminished in this way; all the branches given off from the artery, before reaching the point of communication with the aneurismal sac, could be utilized for the purpose of establishing and carrying on the collateral circulation, but this cannot be done if the artery be tied at a distance from the aneurism.

These observations are not directly applicable to the treatment of spontaneous aneurism; because, in such cases, the artery is always more or less diseased (atheromatous) throughout the neighbourhood of the aneurismal sac, and may be so much weakened on this account as not to hold a ligature safely in that locality. But it is possible that if the vessel could be secured at the point of communication with the aneurismal sac, by one ligature placed on the proximal side and another on the distal side of it, the treatment of the spontaneous variety of aneurism would be much more successful than it now is. It is also possible that the old operation for the cure of aneurism, known as the method of Antyllus, may again come into vogue in certain cases of spontaneous aneurism.

Further, to counterbalance the important advantages in the treatment

of circumscribed traumatic aneurism, obtained by laying the sac open and tying the artery both proximally and distally at the seat of injury to it, there is but a single disadvantage. The operation is attended with the loss of a good deal of blood, in all cases where one of the larger arteries is involved. This, however, in skilful hands, is unattended with danger, and on that account, a matter of but little consequence in the instances of the femoral, the brachial, and kindred arteries, because pressure can readily be so applied as to control effectually the circulation of the blood in them. In case of either of these arteries, dangerous or even very profuse hemorrhage would be inexcusable. In such cases, most of the blood that is lost if the operation be properly performed belongs to the aneurismal sac or to the limb itself, not having been introduced into the limb subsequently to the commencement of the operation.

*CASE II. Immense pouch-shaped aneurism of the femoral artery, produced by gunshot injury, treated by tying the vessel on both the proximal and the distal side of the orifice, with a good result. Compression of the artery had been tried forty-six hours without effect.*—July 16, 1863. I was called by Dr. G. B. Hammond, Acting Asst. Surg. U. S. A., in charge of the Post Hospital at Camp Barry, to see a soldier named John Wilson, of the 27th N. Y. Battery, aged 26 years, of strong constitution, and a patient in that hospital on account of a large traumatic aneurism of the left thigh, with the following history:—

He had been wounded by a pistol shot, May 26, 1863. The bullet entered the front of the left thigh at about its middle, and, passing backwards close to the femoral vessels, lodged so deeply that it could not be extracted. The track of the bullet healed kindly. An abscess, however, formed on the back part of the thigh about three weeks afterwards, which was opened, explored with Nélaton's probe, and the presence of the bullet being detected by it, the opening was enlarged, a finger introduced, and then the bullet was readily removed. The abscess also healed kindly.

About a week after he was wounded an aneurismal swelling connected with the femoral artery appeared directly in the track of the bullet. It increased in size but slowly, until about the 1st of July, "when its enlargement became quite rapid." On the 16th of June, two weeks after its commencement, Dr. Mursick reported it to be about as large as a hen's egg. On the 10th of July compression of the artery on the cardiac side of the aneurism was resorted to as a means of cure, and was persisted in forty-six hours, when the patient had a convulsion, and the compression was discontinued without, however, having produced any perceptible effect upon the tumour. Four days afterwards, July 16th, when I first saw the case, the aneurism was very large, and occupied a great part of the antero-inner face of the left thigh. It was flattened in shape, and the pulsation and the aneurismal bruit were distinctly perceptible upwards to within two inches of Poupart's ligament, and downwards to within four inches of the knee-joint. We decided to secure the femoral artery by ligature in the neighbourhood of the seat of injury. The aneurism appeared to be sacculated and developed exclusively from the inner side of the vessel. Dr. Hammond attempted to apply a ligature to the artery on the proximal side of the aperture, without opening the sac, but failed because the sac

burst open from the necessary manipulations. The femoral artery had previously been compressed upon the pubis by the fingers of an assistant. The ruptured opening in the sac was then dilated by incisions, and the vessel tied from within the sac on both the proximal and distal sides of the orifice with difficulty, by Dr. Hammond. I observed, when the sac was first opened, that it contained but little coagulum, notwithstanding that the artery had been compressed for forty-six hours only a few days before. After the proximal ligature had been applied, it was attempted to prevent hemorrhage from the distal side until the distal ligature could be applied, by compressing the popliteal artery with a tourniquet and a large compress. But this failing, I readily controlled the distal bleeding by pressing against the side of the artery with a finger applied near the orifice, and from within the sac. While the proximal ligature was being applied I readily restrained the hemorrhage by pressing firmly against the aperture in the vessel with a piece of sponge. The aperture embraced about one-half the circumference of the artery. It was oval in shape, the long diameter corresponding with the course of the vessel. The interior of the sac was smooth in feel throughout its whole extent. The sac itself was very large in point of size, as it extended, when filled, from about two inches below Poupart's ligament down to within four inches of the knee-joint. It was bounded in front by the *fascia lata*, and behind by the *adductor muscles*. It appeared to consist of condensed areolar tissue. The blood, both fluid and coagulated, was carefully removed by wiping with a sponge, and the edges of the wound drawn together, and retained in apposition by three points of interrupted suture and strips of adhesive plaster. The amount of blood lost during the operation was estimated at 32 oz., a large part of which belonged to the sac and not to the general circulation. The ligatures came away on the fourteenth day, July 30th. The wound healed almost entirely by the first intention. The patient did well in every respect. There was not even coldness of the extremity after the operation. The femoral vein was not injured. The proximal ligature was applied at some distance from the orifice, which, however, was not measured. The patient began to do light duty seven weeks after the operation, and he is now, three months after the operation, as well, apparently, as he ever was. The scar of wound of operation was measured by medical cadet Gail, Oct. 25th, and found to be six and one-half inches in length.

This case illustrates well what I consider to be the proper surgical treatment of that form of traumatic aneurism; and an attentive consideration of the difficulties which presented themselves in the course of the operation suggests to me the following method as one which may be adopted with advantage in similar cases, viz: 1st. Arrest the influx of blood by compressing the artery completely and reliably, either by the fingers of an assistant or by a tourniquet, on the cardiac side of the aneurism. 2d. Lay open the sac freely enough to afford room, at the outset, to work without embarrassment. 3d. Next find the aperture in the artery by carrying the finger along the part of the sac in immediate relation with the artery, and by careful exploration in this locality, it will seldom fail to be quickly discovered. 4th. Place the finger of an assistant so as to compress the vessel laterally from within the sac both above and below the orifice in it,

and the blood belonging in the limb will immediately cease to flow out into the sac. The more freely the sac has been opened the more readily of course can this important step be accomplished. 5th. Remove the coagula and sponge out the sac cleanly. This exposes the aperture in the artery to view; then open the sheath of the artery close to the hole in it on the proximal side thereof, and pass a ligature round it with Mott's aneurism needle. As soon as this ligature has been tied, the assistant's fingers, compressing the proximal part of the vessel from within the sac, should be withdrawn. This will give more room for applying a ligature on the distal side of the orifice, which should now be done. Open the sheath of the artery carefully near the orifice on its distal side, and pass the ligature again with Mott's needle. Tie the ligature, withdraw the assistant's fingers from compressing the distal part of the artery, and the operation is completed.

The facility of performing this operation depends mainly upon opening the sac at the commencement by a sufficiently free incision, and upon discovering promptly the precise locality of the opening of communication between the artery and the sac, and upon the assistant's fingers compressing the vessel carefully from within the sac, on both the proximal and the distal sides of the orifice, thus preventing the flow of any blood into the sac, which, if permitted, would obscure the parts, and of necessity delay the application of the ligatures.

This operation should not be undertaken without the aid of competent assistants, if such are within reach, for in no other operation is such aid more important when a large artery is involved. I have taken the liberty of stating the method of performing it at considerable length, because the steps of the operation, which may become important and difficult of execution in the case of any large vessel, have not been laid down by writers on operative surgery. I am also confident that this discussion will prove useful to the surgeon who is about to undertake this operation, and at the same time tend somewhat, I hope, to dispel the dread of hemorrhage which seems to appertain to the performance of this operation, especially for traumatic aneurism connected with a large artery.

By the time that the distal ligature has been tightened, it will be seen that the sac has become much contracted. Now sponge out carefully any blood, whether fluid or coagulated, that there may be in it, draw the free ends of the ligatures out, approximate the edges of the wound, and secure them with a few points of interrupted suture and strips of adhesive plaster. A roller bandage should not, under ordinary circumstances, be employed as a part of the dressing, because by constricting the limb it would tend to embarrass the establishment of the collateral circulation. If it were not applied tightly enough to do that, it would be useless as a dressing, and on that account should not be kept on the wound. The temperature of the limb should be maintained by the application of artificial warmth if neces-

sary, as was done in the case of Capt. Jordan. Care should be taken that the bottles of water, or the bricks employed for the purpose, are not so hot as to burn the limb. But in case of traumatic aneurism of the *axillary* artery, the surgical treatment becomes more difficult, because, in the first place, of the proximity to the centre of the circulation, and in the second place, because external pressure cannot be applied in a way to shut off the flow of blood to the aneurism, with certainty, as readily as in many other parts of the body; for the subclavian artery, as it passes over the first rib, lies deep down behind the clavicle. In Jordan's case I tied the artery as near as possible to the aneurism on the side next to the heart, because it is the operation which is sanctioned by authority, and because it was recommended by a consultation of my colleagues, all of whom are military surgeons of experience. It was my opinion then, which was also fully expressed at the consultation, that the best procedure would be to compress the subclavian artery on the first rib as carefully as possible, then to open the sac freely by incision, and to secure the bleeding end of the severed artery with a ligature; but I was not yet impressed strongly enough with the correctness of this view to put it into practice against the advice of my colleagues, intrenched behind the teachings of authority. However, after following the case attentively to its fatal close by secondary hemorrhage and exhausting suppuration, and after making the autopsy, I have no doubt that his chance of recovery would have been, to say the least, better if that operation had been performed. The principal advantage of the operation proposed over the operation performed, is, in the first place, that it overcomes the danger arising from exhausting suppuration of the sac, for the most part; for, by it the sac is converted into a simple wound, with a strong tendency to heal from the bottom, and, in the second place, it does away almost entirely with the risk of secondary hemorrhage; for, it leaves no vessels with unclosed mouths in the sac, ready to bleed as soon as the collateral circulation is sufficiently established.

The disadvantage of the proposed operation is the risk arising from the hemorrhage (primary) attending the operation itself; but I am now inclined to believe that, by compressing the subclavian artery against the first rib, according to the method recommended by Guthrie, this risk is more apparent than real, even on the supposition that very great difficulty be experienced in discovering the ends of the severed artery. It seems to me that a fair statement of the matter would be this: the operation performed afforded the patient a *reasonable chance* of recovery, while the operation proposed would have made recovery *nearly certain*. Guthrie proposed to compress the subclavian artery with the thumb-piece of the screw of an ordinary tourniquet, wrapped up in a piece of bandage so as not to injure the skin, and pressed firmly downwards and backwards behind the clavicle. The inverted tourniquet would afford an excellent hold for the hands of the assistant, if compression were required to be continued

for a long time. In this way any *competent assistant* would be able to effectually control the circulation of blood in the subclavian artery in ordinary cases. We should, however, state before leaving this part of the subject that there is no doubt but that *the treatment of traumatic aneurism should be modified according to the peculiarities of each case*, especially with respect to the situation of the aneurism, and the character of the parts overlying and surrounding it. For example, we would not treat an aneurism of the ulnar arch in the palm of the hand by opening the sac and tying the artery from within it, until other means, such as compression, etc., had failed, because the operation would require the division of the annular ligament, and consequently would produce permanent impairment of the function of the hand. The duration of a traumatic aneurism may also call for modifications in the surgical treatment. The slower its development and the longer it lasts, the more closely it resembles a spontaneous aneurism, and the more amenable it becomes to the treatment successful in spontaneous cases. It appears further, that the more chronic a traumatic aneurism is, in respect to growth, the more likely it is to undergo a spontaneous cure, by the filling up of the sac with laminated fibrin, or with coagulated blood.

*The Wounded Nerves.*—Hitherto we have considered Jordan's case only so far as the wounded axillary artery is concerned. Let us now devote a little time to the wounded brachial plexus nerves. The autopsy showed that all the trunks of that plexus were divided, except the trunk of the musculo-spiral and circumflex nerves, and that their extremities were separated so widely from each other (about three inches) that it was impossible for them ever to unite again. Under these circumstances, if the patient had recovered from the aneurism, he would have always had a useless arm dangling by his side. No portion of it would have ever been of any advantage to him, and amputation of it would have been advisable, as soon as the true condition of the brachial plexus became known. Now, if the operation proposed had been performed, this hopelessly damaged condition of the nerves would have been discovered, and the useless limb could have been amputated at once. Without cutting down upon these nerves, all one could say with regard to their condition was, that they had suffered some kind of injury, whereby the arm was paralyzed; it might be concussion, it might be contusion, it might be division, or it might be a combination of all three forms of injury. Without an explorative incision an exact diagnosis was impossible. It is worthy of further remark in relation to the injured nerves, that *he suffered but little pain*, which is different from what is usually stated by writers, as appertaining to such injury of nerves.

The reader will observe that the musculo-spiral nerve suffered only from concussion, and that sensation returned to many of the parts supplied by it.

*Modus operandi of the after-bleeding.*—The pathology of the *secondary hemorrhage*, which occurred in Jordan's case, is also an interesting subject,

and next demands our attention. Did the blood escape from the distal, or the proximal end of the severed artery? It is a fact well established by observation, that secondary hemorrhage from wounded arteries generally takes place from the distal side of the wound, because of the feeble adhesion and the imperfect closure of the artery on that side of the wound in it; and when the collateral circulation comes to be sufficiently established, the blood, flowing backward in the distal portion of the vessel, readily overcomes the feeble union at the seat of injury, and makes its escape therefrom. It is this inability on the part of the reparative process unaided by art, to securely close the artery on the distal side of the wound, which makes the application of a distal ligature a matter of so much importance in all cases of wounds involving arteries of magnitude. But the secondary bleeding, in the case under consideration, probably did not take place from the distal end of the artery. For, at the autopsy, this part of the vessel was found to be very much contracted, its calibre being reduced to about a line in diameter, and this extreme degree of contraction existed not only at the end but continued as far as the vessel was examined, which was a distance of two or three inches. Now, the distal part of the artery, thus diminished in size, was entirely too small to supply the quantity of blood which was poured out on either of the three occasions when secondary hemorrhage occurred. Moreover, the shrunken vessel was blocked up by a coagulum for a distance of nearly half an inch, commencing a little way within its wounded extremity. For these two reasons, I think that the secondary bleeding could not have taken place from the distal end of the severed artery.

But at the autopsy we found that the proximal portion of the vessel was not diminished in size, and what was still more important that its branches, such as the thoracica acromialis and the superior and the inferior thoracics, were very much enlarged. Their increased size was apparently connected with the establishment of the collateral circulation, and on that account they probably performed an important part in the production of the secondary hemorrhage. The initial one of the three secondary bleedings occurred, in all probability, from the proximal end of the artery, and in this way. The collateral circulation having been established, the blood flowed backwards, through the branches above mentioned, into the part of the axillary artery, embraced between the seat of the ligature and the point of division by the bullet, with a sufficient force to overcome the adhesions, which had again closed the proximal end of the vessel, subsequent to the deligation of the subclavian artery. Thus, these adhesions being overcome, the blood found its way readily into the aneurismal sac which was not yet obliterated, and escaped externally through the opening into the sac, which was not yet closed.

One of the subsequent hemorrhages may have been occasioned by ulceration of the subscapular artery, for, while making the autopsy, I noticed



that this vessel was wanting, having apparently been destroyed by extension of the ulcerative process from the suppurating sac.

It is probable that the radical surgical treatment advocated in the preceding pages is more essential to the ultimate recovery of the patient from traumatic aneurism of the *axillary artery*, than from the same lesion involving almost any other artery, of similar magnitude, in the whole body. This necessity of ligating a wounded axillary artery, at the seat of injury to it, always, not even making an exception when a circumscribed traumatic aneurism is the subject of treatment, is occasioned by the intimate vascular relations which exist between this vessel and the neighbouring parts. It will be remembered that the great artery of the upper extremity, while passing outwards behind the pectoral muscles, and beneath the clavicle and the shoulder, gives off no less than six branches of considerable size, between the inferior border of the first rib and the fold of the armpit, all within the space of a few inches. These branches inosculate freely below the axillary region, both in front and externally, with branches of the internal mammary and intercostal arteries, and also above and behind that region, with branches of the supra and posterior scapular arteries. It will thus be perceived that, in the case of an aneurism of the axillary artery, treated by ligature of the subclavian in the third part of its course, or even by ligature of the axillary itself, near its commencement, if perchance the sac should suppurate, and its contents be discharged externally, secondary hemorrhage, of a dangerous character, is almost sure to follow as soon as the collateral circulation is sufficiently established, and even then the bleeding may not take place from the distal portion of the vessel, as usually happens in cases of secondary hemorrhage produced by traumatic lesion of arteries, but from the proximal portion of the vessel, as happened in Jordan's case. From these considerations, it seems to me that the most rational and effectual way of preventing such secondary hemorrhage is to secure the vessel by ligatures applied at the seat of the original injury, one on each side of it, instead of tying the artery at some distant point.

Furthermore, statistics<sup>1</sup> show that the sac is much more liable to suppurate in cases of aneurism of the axillary artery than it is in cases of the same disease involving any other vessel. Now, without stopping to inquire into the cause of this special tendency to suppuration of the sac, and consequent secondary hemorrhage, I think that the existence of such a tendency makes it still more the duty of the surgeon to tie the vessel, both proximally and distally, at the seat of injury, in *all cases of traumatic aneurism of the axillary artery*; and I believe that an attempt should be made to secure the vessel in this way, in all such cases, unless it is certain that the arterial tunics are softened, expanded, or otherwise meta-

<sup>1</sup> Erichsen's Surgery, pp. 557, 558.

and next demands our attention. Did the blood escape from the distal, or the proximal end of the severed artery? It is a fact well established by observation, that secondary hemorrhage from wounded arteries generally takes place from the distal side of the wound, because of the feeble adhesion and the imperfect closure of the artery on that side of the wound in it; and when the collateral circulation comes to be sufficiently established, the blood, flowing backward in the distal portion of the vessel, readily overcomes the feeble union at the seat of injury, and makes its escape therefrom. It is this inability on the part of the reparative process unaided by art, to securely close the artery on the distal side of the wound, which makes the application of a distal ligature a matter of so much importance in all cases of wounds involving arteries of magnitude. But the secondary bleeding, in the case under consideration, probably did not take place from the distal end of the artery. For, at the autopsy, this part of the vessel was found to be very much contracted, its calibre being reduced to about a line in diameter, and this extreme degree of contraction existed not only at the end but continued as far as the vessel was examined, which was a distance of two or three inches. Now, the distal part of the artery, thus diminished in size, was entirely too small to supply the quantity of blood which was poured out on either of the three occasions when secondary hemorrhage occurred. Moreover, the shrunken vessel was blocked up by a coagulum for a distance of nearly half an inch, commencing a little way within its wounded extremity. For these two reasons, I think that the secondary bleeding could not have taken place from the distal end of the severed artery.

But at the autopsy we found that the proximal portion of the vessel was not diminished in size, and what was still more important that its branches, such as the thoracica acromialis and the superior and the inferior thoracics, were very much enlarged. Their increased size was apparently connected with the establishment of the collateral circulation, and on that account they probably performed an important part in the production of the secondary hemorrhage. The initial one of the three secondary bleedings occurred, in all probability, from the proximal end of the artery, and in this way. The collateral circulation having been established, the blood flowed backwards, through the branches above mentioned, into the part of the axillary artery, embraced between the seat of the ligature and the point of division by the bullet, with a sufficient force to overcome the adhesions, which had again closed the proximal end of the vessel, subsequent to the deligation of the subclavian artery. Thus, these adhesions being overcome, the blood found its way readily into the aneurismal sac which was not yet obliterated, and escaped externally through the opening into the sac, which was not yet closed.

One of the subsequent hemorrhages may have been occasioned by ulceration of the subscapular artery, for, while making the autopsy, I noticed

that this vessel was wanting, having apparently been destroyed by extension of the ulcerative process from the suppurating sac.

It is probable that the radical surgical treatment advocated in the preceding pages is more essential to the ultimate recovery of the patient from traumatic aneurism of the *axillary artery*, than from the same lesion involving almost any other artery, of similar magnitude, in the whole body. This necessity of ligating a wounded axillary artery, at the seat of injury to it, always, not even making an exception when a circumscribed traumatic aneurism is the subject of treatment, is occasioned by the intimate vascular relations which exist between this vessel and the neighbouring parts. It will be remembered that the great artery of the upper extremity, while passing outwards behind the pectoral muscles, and beneath the clavicle and the shoulder, gives off no less than six branches of considerable size, between the inferior border of the first rib and the fold of the armpit, all within the space of a few inches. These branches inosculate freely below the axillary region, both in front and externally, with branches of the internal mammary and intercostal arteries, and also above and behind that region, with branches of the supra and posterior scapular arteries. It will thus be perceived that, in the case of an aneurism of the axillary artery, treated by ligature of the subclavian in the third part of its course, or even by ligature of the axillary itself, near its commencement, if perchance the sac should suppurate, and its contents be discharged externally, secondary hemorrhage, of a dangerous character, is almost sure to follow as soon as the collateral circulation is sufficiently established, and even then the bleeding may not take place from the distal portion of the vessel, as usually happens in cases of secondary hemorrhage produced by traumatic lesion of arteries, but from the proximal portion of the vessel, as happened in Jordan's case. From these considerations, it seems to me that the most rational and effectual way of preventing such secondary hemorrhage is to secure the vessel by ligatures applied at the seat of the original injury, one on each side of it, instead of tying the artery at some distant point.

Furthermore, statistics<sup>1</sup> show that the sac is much more liable to suppurate in cases of aneurism of the axillary artery than it is in cases of the same disease involving any other vessel. Now, without stopping to inquire into the cause of this special tendency to suppuration of the sac, and consequent secondary hemorrhage, I think that the existence of such a tendency makes it still more the duty of the surgeon to tie the vessel, both proximally and distally, at the seat of injury, in *all cases of traumatic aneurism of the axillary artery*; and I believe that an attempt should be made to secure the vessel in this way, in all such cases, unless it is certain that the arterial tunics are softened, expanded, or otherwise meta-

<sup>1</sup> Erichsen's Surgery, pp. 557, 558.

ART. X.—*Case of Aneurism of the Axillary Artery.* By ISAAC NORRIS, Jr., M. D., Act. Assistant Surgeon U. S. A.

HENRY GROTHENN, Sergeant of Co. K., 5th U. S. Cavalry, aged 28 years, was admitted into the McClellan U. S. Army General Hospital, June 23d, 1863, from the Lincoln Hospital, Washington, with an aneurism of the right axillary artery, the result of a gunshot wound—received at the battle of Beverly's Ford, June 9th, 1863. The ball had passed in on the anterior part of the arm, near the shoulder-joint, and was cut out before entering the hospital, an inch below the inferior angle of the scapula.

When I took charge of the ward, on July 26th, after my transfer from the Chestnut Hill Hospital, the patient was absent. He returned on the 28th, and after making a careful examination of the arm, the true nature of the disease became manifest, as the pulsation of the tumour—at that time about the size of a large horse-chestnut—was very apparent, and upon auscultation, the aneurismal thrill could be distinctly heard, corresponding with the contraction of the left ventricle of the heart.

My predecessor had made an apparatus composed of a compress of lead, with screws so arranged that by tightening them any amount of pressure desired could be placed upon the part. The apparatus was adjusted, but after a trial of some thirty hours, it was abandoned on account of the pain it gave the patient, and a padded bandage was substituted, in the faint hope that it might be of use. This was worn for nearly ten days, but it was finally left off, and the treatment was reduced to keeping the arm, as nearly as possible, at perfect rest. On the 16th of August last, the aneurism became much larger, and from the pressure upon the axillary plexus of nerves, occasioned him great pain.

The following evening it was decided to operate, and tie the subclavian, despite the hazard attending it. The aneurism broke unfortunately early the next morning, before the operation could be performed, and the patient lost from thirty to forty ounces of blood. The hemorrhage finally ceased of its own accord, but he was so weakened and exhausted from the great loss he had sustained, that it was the opinion of the medical staff of the hospital upon consultation, that if anything was attempted then, he would die under the operation, and that his life might be prolonged for a few hours more by keeping up digital compression upon the artery. This was accordingly done, and the assistants appointed relieved each other every hour or two, until the arrival of Surgeon R. H. Coolidge, Medical Inspector of the Army, on a chance visit to the hospital, who at once became interested in the case, and thought the subclavian should be tied without delay; the temporary absence of Dr. Taylor, the surgeon in charge, being the objection to its performance. As the patient seemed to be rallying each hour, Dr. Coolidge decided to return to the hospital in the afternoon, and operate if no objection then existed. Upon his return, the hemorrhage having again commenced, he proceeded to ligate the subclavian, in the third part of its course. (I here give the account of the operation as furnished by the Doctor.) "The patient came easily under the influence of the chloroform, and the operation was performed carefully and deliberately. The loss of blood amounted to a few drops only, hemorrhage from the aneu-

rism having been completely arrested by a tourniquet. Chloroform was not administered after the operation began.

"The artery, on being exposed, was found closer to the brachial plexus than usual, and it was also quite deeply seated, the patient being a large, muscular man. An armed artery needle having been passed beneath the vessel, from below upwards and outwards and withdrawn, it was found by the operator, and his assistants also, that the inferior cord of the brachial plexus was included in the ligature, a result attributed in part to the want of sufficient curve in the needle. Another one having a more abrupt curve, being armed and passed beneath the artery, it was elevated by the first ligature, and care taken to exclude the nerve above mentioned. The first ligature was then withdrawn, and several of the medical officers present having examined the parts, and satisfied themselves that nothing but the artery was embraced in the ligature, the knot was tied, the lips of the incision drawn together and the patient placed in bed."

Everything seemed to do well until about 8 o'clock in the evening, when the patient complained of considerable pain in the region of the wound. Morphia was given to him freely, and repeated the following hour, but without the effect of quieting him. The patient from that time grew rapidly worse, suffering with great dyspnœa, and at midnight expired, six hours after the operation.

The post-mortem revealed the unexpected fact that a nerve of considerable size, lying immediately posterior to the artery, had been included in the ligature despite the care that had been taken to prevent it. It is to be regretted that this nerve was not traced to its origin and termination; all that can now be said, is that it was followed as a single cord down to and upon the posterior wall of the aneurism. It was certainly neither of the two cords of the brachial plexus, and its situation was beyond doubt abnormal, as the nerve included in the ligature was directly opposite the knot, and cannot be seen when the artery is placed in its proper position. It is scarcely necessary to add that no writer on anatomy has described such a nerve, nor has any dissection, on record, shown the existence of one, previous to this.

At the time the ligature was tied the patient was but slightly under the influence of the chloroform, and no pain was manifested until several hours afterwards.

The preparation is an exceedingly instructive one, the aneurismal sack being very large, and the course of the artery well shown. The infiltration of blood also into the surrounding cellular tissue was very great.

Too much praise can scarcely be awarded to Dr. Coolidge for the admirable manner in which the operation was performed, and although it was not successful in saving the man's life, owing to the great loss of blood he had sustained in the morning, still it was giving him the only chance, and humanity dictated that it should be performed.

The specimen has been carefully prepared, and will be sent on to Washington for the National Museum now forming there.

MCCLELLAN U. S. A. HOSPITAL, Oct. 1st, 1863.

ART. XI.—*On a Simple Dressing for Recent Burns.* By JOHN H. PACKARD, M.D., of Philadelphia.

IN the spring of 1853, while an officer of the Philadelphia City Dispensary, in Fifth Street, I was called one day to attend a German manufacturer of fancy soaps, in the neighborhood, who had been severely burnt over the face, one arm, and the side, by the blazing up of a quantity of alcohol. I visited him for several days, using from the outset the "carron oil," or mixture of linseed oil and limewater, as I had been taught. But this failed to allay his pain, even with the aid of anodynes given internally; and becoming dissatisfied, he dismissed me, and procured the services of an old friend of his, formerly a surgeon in the Austrian army. On my seeing him a short time afterwards, he told me that his friend had given him immediate relief by the application of fresh lard; and the appearance of the injured parts was indeed surprisingly favourable.

Bearing this case in mind, I made trial of the plan suggested as soon as an opportunity offered itself, and was so well satisfied with the result that I continued its use. Since that time there have come under my care a great many cases of burns and scalds of all degrees of extent and severity; but none in which the simple dressing above mentioned has not answered well. It has repeatedly, I do not know how often, occurred to me to see patients who have had other dressings applied, but whose sufferings continued unrelieved until the lard was put on.

Some of these instances have impressed me very forcibly. One was that of a child about 3 years of age, to whom I was accidentally called. He had pulled a kettle of boiling water off a table upon himself, and was badly scalded over the face, upper part of the chest, and arms. His mother had applied linseed oil and limewater, but to no good purpose; he was screaming and crying violently with pain. Some fresh lard having been brought, I dressed his injuries with it, when he immediately ceased crying, and in a few minutes fell into a sound sleep. His recovery was very rapid.

Another case occurred to me a week or two since. A child 4 years old was reaching for some plaything on a mantelpiece over a grate, when his clothes (he was in petticoats) swung out against the fire, and he was instantly in flames. Before the fire could be put out he was burned over both thighs, both arms, the body, the back of the head, and slightly over the face. When I saw him, about two hours afterwards, he was suffering severe pain, and very restless, although dressed with carron oil. As soon, however, as the entire burnt surface was covered with fresh lard, he became easy, and remained so until his death, which took place in about 18 hours from the time of the accident.

As has been already stated, these cases are among very many others

which have come under my notice. They impressed themselves on my mind because of the very marked relief given by the lard when other means had failed. Moreover, in children, we can as a general rule estimate the amount of suffering by the amount of complaint made; whereas, adults will often either exercise self-restraint, or subdue the expression of pain from the mere expectation of speedy relief.

The "carron oil" is well known to the public as well as to the profession; so that it is often applied by the bystanders or friends, in cases of burn, before the arrival of the surgeon. Its use is advocated in preference to that of any other article, in an able paper on the injuries in question, contributed by Dr. John Ashhurst, Jr., to this journal for July, 1862; and this is the only one of the points so well set forth by him, to which I would take exception. The smell of linseed oil is very offensive and sickening, while the limewater, never wholly incorporated with the oil, is apt to evaporate at many points, leaving the linen or other stuff upon which it is spread sticking to the skin. By covering the dressing with oiled silk, we may indeed obviate this annoyance; but oiled silk, although usually at hand in a hospital, is seldom to be had in any quantity in private houses.

What we want to do, in dealing with a burn, as regards local treatment, is simply to protect it altogether from irritation; reference being had here to the early period of the case only, and not to its later stages, when stimulation is often called for. If, therefore, we cover the injured surface with a bland, unirritating and air-proof medium, our object will be gained. Such a medium I believe to be best furnished by fresh lard.

This material can almost always be procured in any desired quantity, and at the shortest notice. If salted, it can be easily deprived of the salt by washing with water. My own practice is to spread it thickly on pieces of very soft old linen or muslin (old table-cloths are excellent), and then tear off pieces of suitable size to amply cover the affected parts. The great object is to apply the dressing accurately to the surface. For the face, a mask may be readily made of a piece of the spread stuff, the eyelids, or ears, if involved, being first covered with small bits of it. When a limb is concerned, it is better to tear off strips and wrap the part lightly with them, like a common bandage, except that no reverses are made. Or reverses may be made, the surface of each being smeared with the lard before it comes on the skin. As it is impossible to dress burns neatly, we may as well discard at the outset all idea of doing so, and aim wholly at promoting the comfort of the sufferer.

In very warm weather, or when the patient is to remain in a heated atmosphere—an important advantage in almost every case of severe and extensive burns—the lard may be deficient in "body;" it is then necessary to add to it a small proportion of simple cerate. About one part of cerate to four or six of lard will usually answer the purpose

So much has been written on the treatment of burns, from the earliest times to the present day, that it may seem presumptuous to attempt to throw any new light on the subject. But, so far as my reading goes, the simple dressing I have now advocated has never been more than mentioned by any writer, nor have I met with any knowledge of it among my professional friends. So completely has it satisfied me, after a very extensive trial, that I feel bound to make its value known to others, confident that they will not be disappointed in its effects.

OCTOBER, 1863.

---

ART. XII.—*Bibron's Bromine Mixture an Antidote to the Poison of the Boa Crotaloides.* By CHARLES H. HUGHES, M. D., Surg. 1st Inf. M. S. M. Vols.

MANY reputed antidotes to the poison of the different species of crotalus and other venomous serpents which abound in our country, have, of late years, found their way into the columns of our medical periodicals, each having its complement of zealous advocates ever ready to bear testimony to its efficacy, if not its infallibility.

The Mexican *gallindrinera*, or *Euphorbia prostrata*; the Asiatic, or *Taujore* pill; the diffusive stimulant plan, with hot brandy and water, ammonia, whiskey, or the *eau de luce*; the well-known "Western cure," making the patient drunk; the wine and bark; the galvanic plan, the iodine plan, and the antidote of Bibron, all have had, and many of them still have their earnest votaries.

The efficacy of some of the above remedies has been attested by the recorded experience of men of eminence in the profession, whose statements are entitled to the fullest credence, and it is for the purpose of confirming the statements of the great French naturalist respecting the value of his antidote (the last mentioned), that we ask permission to add our testimony to that of Hammond, Gross, M. De Vesey, and others, by a record of the following case:—

Private William Vinoss, Co. F. 1st Infantry Mo. Vol., Mil., a German, æt. 22, entered regimental hospital July 13th, having been bitten a few hours previously by a genuine specimen of the reptile known in the Western States as the copperhead. The seat of the bite was the extremity of the little finger of the left hand.

Immediately after the reception of the bite, the comrades of the bitten man applied a tight ligature around the finger, a little anterior to the metacarpo-phalangeal articulation, which effectually prevented the venom from mingling with the general circulation, and dosed him with whiskey, but not in sufficient quantities to produce intoxication. In this condition he was brought to the hospital, and on the morning of the fourteenth, the treatment to which we attributed his recovery was instituted.



Few other surgeons would have hazarded an attempt to save the finger, but would have removed it at once, and been content with the salvation of the patient's life, considering it cheaply purchased at the expense of simply a finger; we began our treatment with the design, if possible, of not only saving the whole, but of preserving the part also.

To fulfil the indications which presented as necessary for the salvation of the finger, we loosened the ligature, incised the finger as for whitlow, and immersed it in warm water for twenty-four hours. To this treatment we added an emollient anodyne poultice on the third day, and continued it through the fourth, when simple cerate dressings were daily applied until July 30th, at which time he was returned to duty.

This constituted all the local treatment save the lancing of the sacs of infiltrated blood and serum, and the application of anodyne and astringent lotions to the hand and forearm.

In the part all the customary symptoms of venomous snake-bite were manifest. The black and deadened appearance around the bite, the sero-sanguinolent exudation and the excruciating pain were all present in the finger from the time the bite was received, and as soon as we loosened the ligature, became apparent in the hand and forearm. Here the swelling was great and the pain intense; the former extending to the elbow, and the latter reaching to the axilla.

Constitutional symptoms were but slightly manifest. They consisted in slight nausea, a little anxiety of countenance, faintness and rigors, all of which very speedily disappeared as soon as the antidote had taken full effect upon the system.

The constitutional treatment consisted exclusively of Bibron's antidote, which was commenced soon after the ligature was removed and the dose repeated, on the first day, every three or four hours, on the second *ter die*, and on the third day *pro re nata*. In all, about twelve doses were given. No internal anodynes were exhibited, and no other internal remedies, except a copious draught of whiskey at bedtime to procure sleep.

The history of this case reveals the fact, that the local symptoms were sufficiently intense to warrant the anticipation of serious constitutional disturbance, and had we not possessed unlimited confidence in the efficacy of Prof. Bibron's combination, we would have been apprehensive of a fatal termination, and felt that we had committed a grave error in loosening the ligature and allowing the contaminating virus to course through the circulation; but if M. Bibron could permit the whole envenomed host to nestle in his bosom and gambol over his face, inserting their poisoned fangs beneath his skin at pleasure, and could charm away all deadly effects and escape unharmed, if bitten while his system was under the influence of his antidote, why should not *we* have confidence in his remedy, and feel that our patient was safe under its administration?

It will be observed that the treatment of this case was uncomplicated. No "shot-gun plan," in which the number of remedies used is so great that one cannot tell to which to attribute the successful issue, was adopted. Medical journals are often encumbered with reports of such cases, but in this instance the efficacy of the antidote was indubitable. The whiskey first administered was given, and its effects had passed off before the re-

removal of the ligature and the entrance of the poison into the general circulation. That given as a soporific was taken many hours after the administration of the antidote, when the beneficial effects of the latter had become manifest in the arrest of the swelling and in the speedy subsidence of the constitutional symptoms, which were apparent long enough to show that dissolution and death awaited the patient, and were only warded off by the timely action of the antidote.

The composition of Bibron's antidote, as prepared and furnished to army surgeons by the medical purveyor, is as follows: R.—Brominii, ℥iiss; potass. iodidi, gr. ii; hyd. chl. corrosiv., gr. j; alcohol. dilut., fʒxxx. Misce.

"With the following directions for administration: Give a fluidrachm diluted with a tablespoonful of wine or brandy, and repeat it, if necessary."

The formula given by the discoverer of the antidote, and employed by Drs. Hammond, Gross, Henry, and others in the United States who have used it successfully, is more concentrated, and not combined with alcohol, but simply mixed with wine or brandy when administered. It is as follows: R.—Potassii iodidi, gr. iv; hyd. chl. corrosiv., gr. ij; brominii, ʒv. Misce. Guttae x at a dose, repeated if necessary.

We confess our inability to satisfactorily explain the *modus operandi* of this combination.

Its efficacy is probably entirely due to the bromine, and it would seem from the size of the dose which can be tolerated when the system is under the influence of the virus, that it acts as a direct antidote or neutralizer of the venom. Its virtues cannot be attributable, we think, to any property it may possess of stimulating the nervous centres, and thus sustaining the system against the depressing effects of the poison, while the latter is being eliminated; if such were the case it would be analogous to galvanism, brandy, and ammonia in its action, and these are its best antidotes, especially the latter, which is the most potent one known. It cannot resemble any of the Euphorbiaceæ in its mode of operation, for between them and bromine there exists no appreciable similarity either in physiological or toxical action.

Perhaps it acts like iodine, only with greater power. This conjecture seems to us not entirely groundless, from the well-known fact that, like this medicine, it is a stimulator of the lymphatic system and a promoter of absorption, and is considered highly valuable in cases where the latter, from long-continued use, has ceased to be effectual, or is devoid of sufficient activity. Its virtues, however, cannot be due, we think, to its absorbent properties; a stimulator of the *excretory* system, in such a case as the present one, is more desirable than a stimulator of the absorbents. To facilitate absorption is to hasten death, for every atom of the poison is a germ of dissolution, carrying destruction to every part it touches.

Dr. James S. Whitmire, of Metamora, Ills. (who preceded Prof. Brainard in the discovery that iodine employed locally is an antidote to the venom of the rattlesnake, in an article in the *Chicago Medical Journal* for May or June, 1860), after having performed many laborious and interesting experiments on the inferior animals, and treated seventy-five cases in man, states, as his opinion, that the venom first produces debility of the capillaries by direct contact, and afterwards affects the entire system by being absorbed into the general circulation, and that the tincture of iodine used as a paint of the part, gives tone to the vessels by being absorbed. The iodine plan of treatment he regards as eminently rational, because he has so satisfactory an hypothesis respecting its *modus operandi*, upon which to base it.

Whether this explanation respecting the manner in which the poison of the rattlesnake acts on the organism be a true one and applicable to the action of the copperhead virus, and whether it would be rational to conclude from the identity of iodine and bromine in their therapeutic action, that the latter acts in the same manner as Dr. W. supposed the former to act, only with greater force and certainty, we leave to the more eminent in the profession to determine. Our investigations in the field of animal toxicology have not been sufficient to warrant us in announcing any positive opinion upon the subject; nevertheless, it does seem to us that the large quantity of the antidote given, if it had circulated *uncombined* in the blood (as it would have had to do in order to "give tone to the arterial system"), would have fatally lowered the action of the heart and arteries before our treatment was completed, and applied locally that its effect would have been to *destroy* rather than to *stimulate* the capillaries.

---

ART. XIII.—*Cases.* By ISAAC G. PORTER, M. D., Acting Assistant Surgeon U. S. Army at Fort Trumbull, Ct.

CASE 1. *Chronic Pleurisy from Gunshot Wound, with Operation of Paracentesis.*—Keefe, private, 14th U. S. Infantry, 21 years of age, while "running the guard," for a second or third time at this post, received three gunshot wounds, the missiles being buckshot. Two of the latter entered his legs, inflicting mere flesh wounds; while a third struck a rib, one inch beneath the angle of the left scapula, and coursed around the chest, and to the left, the length of a probe; its subsequent direction and position being doubtful. The shock to the system was marked, and resulted in much depression. A slight cough commenced on the following morning, with bloody expectoration, both of which continued for three days, and then ceased. This, in connection with a slight emphysematous condition of the cellular membrane, in the neighbourhood of the external wound, indicated a probable injury of the lung. Auscultation and percussion failed for some time in announcing pathological changes, and, with the exception of a severe periodical cough, coming on every evening and

lasting half an hour, there was nothing to cause suspicion of the approach of pleurisy; respiration being natural, and the patient able to lie, from the first, on either side, and in the horizontal position. Rest, rigid diet, and mild antiphlogistics, with morphia for the paroxysmal cough, were all the medication which he received at the outset. Though his countenance did not recover its accustomed hue and healthfulness, yet his appetite being good from the first, and there being no cough, and but little if any dyspnoea, he was sent to "quarters." Subsequently, physical examination detected a gradual effusion into the left cavity of the chest, which increased ultimately until the heart pulsated three inches to the right of the median line of the sternum. So gradual was its occurrence, that the opposite lung had been able perfectly to adapt itself to its increased and supplemental duties, and decubitus on either side, with the head low, was perfectly easy and without cough.

Having been successful, in repeated instances, in promoting the absorption of recent pleuritic effusions, by following substantially the practice of that eminent English physician, Dr. Hope, and which is detailed in the *Medico-Chirurg. Rev.* for 1841, I made an effort to that end in this case, but owing possibly to the persistence of the cause, or the length of time which had elapsed since the effusion occurred, or rather since the wound was inflicted (about seven weeks), the attempt was unsuccessful. The treatment consisted in large blisters frequently repeated, the use of squills, digitalis, and calomel, and subsequently hydragogue cathartics and iodide of potash. Owing to unsusceptibility of the system to the action of mercury, its specific effects could not be produced by careful medication, and hence possibly a ground of failure.

Although there was no imperative symptom demanding an operation, yet as the presence of effusion was so clearly indicated by stethoscopic and other symptoms, it was thought advisable to operate, which was done substantially after the manner of Wyman and Bowditch, using a small exploring trocar, but in connection with the stomach-pump furnished army surgeons and manufactured by Tiemann, in place of the more complicated instrument invented specially for this purpose.

The resistance being considerable and the trocar delicate, it could not be forced in rapidly for fear of breaking, and the pleura was evidently pressed before the needle, and although ultimately punctured, yet, from some cause, the orifice in the canula became closed after about 36 of bloody serum had been discharged. The relief was, however, marked and permanent; respiration was deeper, vocal fremitus increased in extent, the heart in some measure receded to its accustomed position, and the patient became in all respects improved. Diuretics and hydragogue cathartics had an increased power, and, within a fortnight after the operation, there were some two or three pints of serous matter discharged apparently by fistulous opening into the bronchiæ; since which period he has been constantly improving in health, and at his own suggestion was returned to garrison duty.

Although the heart still pulsates a little to the right of the sternum, and there is flatness on percussion over the lower portion of the left lung, yet he looks as well as before the accident, and is able to perform most of the duties of a soldier.

The points of interest in the case are the following:—

1st. The absence of rational symptoms of pleurisy, when so large an effusion had occurred as to displace the heart. Though rare, yet similar

cases are referred to by Stokes, who says he "has known persons with copious effusions to look well; to be free from fever, pain, or any local distress; to lie equally well on both sides; to have good appetites, in which they could indulge without apparent injury, and all this when the heart was pulsating to the right of the sternum. Hence the importance of physical signs." The present case verifies this description in every particular.

2d. In carrying out the principle of extracting the effusion without the admission of air, a stomach-pump was used in place of the instrument devised originally by Dr. Wyman for the purpose. It is well to use one instrument for two or more purposes, when in our power, especially in the army. About an inch of the lower or heel-end of the exploring canula was surrounded by a cylindrical or slightly conical body of sealing wax, one-quarter inch in diameter. A piece of India rubber tubing, two or three inches long, was drawn over the lower orifice of the pump, and secured by a blowpipe with sealing wax; the other end being left free to be drawn over the conical or heel-end of the canula after the puncture had been made, and the needle withdrawn. Care must be taken lest the tubing be too long, and thus collapse occur as suction proceeds. As the piston is raised, the pump is filled, and by means of "the lever," a valve closes the entrance into the chest; and as the piston descends, the fluid is discharged through another orifice in the side of the pump. A repetition of this action is all that is necessary. Until the canula became obstructed, the action of the pump was perfect.

The question may arise, ought not the operation to have been repeated, and thus the system freed from an unnatural burden? Had any threatening symptom occurred, it doubtless would have been proper; but as the patient had a capacious chest, and was daily gaining in weight, it was deemed unnecessary. This question is discussed with interest in Dr. Gairdner's recent work on "Clinical Medicine," with the conclusion, that the operation, as conducted by Bowditch, without the admission of air and with only a small punctured wound, is safe, and often salutary.

P. S. August, 1863.—In June, this man's chest was carefully examined, and the lower half of the left lung found dull on percussion, no vocal fremitus, and the heart pulsating a little to the right of the sternum. Having been through the seven days' fighting before Richmond, he had a strong desire to renew his experiences, and earnestly besought his commander that he might return to the field. The nature of the case was fully explained to the officer, but the man appeared so well, and was so very anxious to rejoin his regiment, that he was suffered to leave the post in company with others, and marched many days with his command. Two days before the battle of Gettysburg he fell in the rear, but overtook the army about one hour before the conflict, throughout which he fought his way unscathed; a striking instance of martial energy, and of endurance under physical disability.

CASE 2. *Anomalous "Choreic Convulsion."*—March 28, 1863. Turpin, unassigned recruit, 14th Regt. U. S. Infantry, 28 years of age, an athletic "trapper," of irritable temperament, and never ill, except six weeks with rheumatism; for some abuse from a subordinate officer, suddenly attempted desertion. He took the track of a railroad, and ran seven miles at the top of his speed, hoping to reach a station and enter a train before his pursuers, whom he saw in the latter portion of his rout, on a hand car, could overtake him. Here he left the track, and took refuge beneath an upturned boat, where he was, not long after, discovered, and presented the following conditions. He was perfectly conscious, but unable to stand, having lost control of nearly every muscle of the body. His heart was palpitating strongly, and his respiration laboured; he was "numb"—had globus hystericus, and his lips felt enormously swollen. His head and hands were in irrepressible motion, and his voice partially lost. He was returned to the guard-house, where this condition of things continued until he fell asleep, when all seemed natural to by-standers. Immediately on awaking the abnormal action was resumed, and when first seen by myself, the idea of "shamming" occurred, but, as the motions were grotesque beyond all imitation, the point was doubtful, and chloroform was resorted to as a test. As he came gradually under its influence in the same measure, the motions ceased, until all was quiet. But when consciousness returned he was as bad as before; and after removing him to the hospital, a careful examination was instituted. His head was moving alternately from right to left, and left to right in a semi-rotary manner, his chin forming an arc of a circle of  $20^{\circ}$  or  $25^{\circ}$  and vibrating, as near as could be counted, two hundred times a minute. Rhythmical with these motions, were alternate contraction and relaxation of the brachial muscles, causing the forearms to be alternately elevated and depressed at the elbows, so that the hands were raised from four to six inches at every flexion. The right side was more convulsed than the left; but on both sides, while the will was powerless to regulate or repress, if any particular manipulation with the hands was attempted, the motions became much more violent and spiteful than at other times. The same effect was produced by any attempt, *ab extra*, to check or curtail the motion. The hands were usually clasped or kept near together, but voluntary motion at the shoulder was practicable, and the arms could be extended at a right angle with the body, the motion of the forearms continuing the same.

Next let us speak of the lower extremities. When sitting or lying recumbent, they were perfectly quiescent, but immediately as pressure was made on the soles of the feet, as in attempting to rise, a saltatory motion commenced, nearly rhythmical with that elsewhere, and as the muscles were clonically contracted, the body was raised upon the toes, and instantly dropped on the heels, the alternate motions rapidly succeeding each other. Just as regularly as the heels struck the floor the teeth clattered together, as the contraction of the masseter muscles brought the jaws in contact. But he was unable to stand a moment without help. The balance of the body was lost, and if he attempted to walk, as he sometimes did for the sake of experiment, he would make a few powerful and ungoverned strides, and then fall, or by chance throw himself on a bed in the ward—as likely to fall one way as the other—*i. e.*, neither forwards, or backwards, or to either side.

The abdominal muscles were so powerfully retracted ("excavated bowels") that it seemed as if the spine could be readily felt; but the muscles

were so rigid that no impression could be made on them. This condition continued while the case was under observation, and although he never before had any trouble about the rectum, yet, now there was a frequent prolapsus to the extent of five inches, which was with difficulty replaced. The voluntary expulsor action of the bowels was lost, yet after a few days they acted "spontaneously." The cremaster muscles were contracted, and the testicles persistently drawn up to the external ring.

The urine ran away of itself—i. e., without the influence of the expulsors—and, unaccountably, was always followed by a little blood. No gonorrhœa existed.

His pulse, as examined in the lower extremities when lying down, was natural. His tongue could not be protruded, nor its character noted, owing to the rapid motion of the head from side to side. The same cause interfered with his taking food or drink. Owing to the spasmodic action of the masseters, he could not masticate. Hence it became necessary to select some soft solid, like recent bread and butter, and by an expert "snap-action" get what we could into his mouth. He drank by suction through an elastic tube, and as he improved, from the spout of a nursing-cup, held loosely in the hand of an attendant.

*April 7.* The ninth day of the disease. A new affection supervened, producing more distress than anything else in the whole course of his experience. The same occurred, as also the "excavated bowels," in a severe case of chorea, recorded by Dr. Walsh, in the London *Lancet*, 1849, p. 327. It consisted of herpes of the right shoulder, which it completely covered, reaching from the lower border of the scapula on the posterior aspect, and descending in front, below the axilla and over one-half of the humerus. It was of a vivid red colour, in patches of irregular form, and filled with vesicles. The stinging deep-seated pain shooting through the chest was intense, aggravated as the eruption was by the impossibility of keeping at rest, his clothes irritating it at every motion.

A few notes respecting treatment are furnished.

*March 31.* The bowels being torpid, a purgative of colocynth and calomel was administered.

*April 1.* There being much spinal tenderness about the cervical and dorsal vertebræ, cups (scarified) were freely applied, which relieved the soreness, but produced little other effect. Two days subsequently, blisters were applied over the same region. As they healed, some advantage seemed to have resulted; for, on the 7th inst., he was able to stand a few moments unsupported. At the same date herpes appeared, as alluded to above, and was treated with a solut. nit. argent. (℞j to ℥j), which was freely pencilled over the surface, with certain temporary relief, and probable ultimate advantage.

*5th.* Sulph. zinc, in doses of 1 grain, increased to 3 grs., was given; but as it nauseated in large doses, after five days' use it was relinquished.

*10th.* Ext. cannabis ind.  $\frac{3}{4}$  gr. and 1 gr. nit. argent., ter in die, as used by Walsh, was ordered. The violence of the convulsive action was evidently mitigated, and the alternate motions of the head reduced from 200 to 140 per minute. Patient says, however, that he feels the shock more than when the motion was more rapid.

*16th.* There being considerable gastric disturbance, dizziness, &c., an emetic was administered, which dislodged much bile and mucus. Medicine resumed and continued until the 23d. On the 20th, his voice partially returned; still the general improvement is not marked; herpes desiccating,

but the neuralgic pains continue very distressing. For this symptom morphia has been freely administered, with much relief.

23d. Commenced use of liquor. arsen. potas.  $\text{m} \vee$  ter in die, continuing the cannabis, but omitting the nitrate.

May 5. The arsenic having begun to produce its specific effect on the stomach, and emaciation being evident—though from the first the appetite has been fair—it was discontinued, and strychnia, the favourite medicine of Trousseau in chorea, was substituted,  $\frac{1}{2}$  gr. three times a day; but having no effect for good, after using it a week, it was stopped.

14th. Blisters having proved more evidently useful than any other article, another was applied to the whole length of the spine. Where there is such constant motion, they irritate exceedingly; hence they have been used, perhaps, too sparingly. This one, being extensive, rendered him frantic, so that he became almost unmanageable.

20th. In a few days he became more quiet than ever, and with or without morphia slept most of the time. His gait is much improved, and by abducting his legs, so as to form a large base, he walks comfortably without assistance. At this date he commenced using large doses of ext. conii, quinia, and precip. carb. ferri (of the latter  $\mathfrak{Dj}$ ), ter in die, and continued them nearly two weeks. He still improved in walking, but the motions of the hands and head continued; the bowels were retracted, and he became dejected, emaciated, and disheartened; and to all who saw him, the prospect of speedy recovery seemed dark. Under these circumstances, he was examined (June 10) by a board of inspectors, and discharged from the service.

A recruiting officer, who knew him, and who saw him two months after his discharge, reports that he is nearly well, and about to start for his old field of action on the mountains of Brazil. He was constitutionally "highly impressible," and freedom, with air and exercise, may have done for him what medicine failed, in part, to accomplish.

The features of this case, viewed physiologically, demand a passing notice. Bennett (*Practice of Med*) lays down the following as an aphorism: "Motion is of three kinds; *contractile*, dependent on muscle; *diastaltic*, dependent on muscle and spinal cord; *voluntary*, dependent on muscle, spinal cord, and brain." According to these principles, whence proceed the abnormal actions in the case detailed; or, what organ is implicated in their production? The same author has a definition of chorea, in its simple form, which is concise and truthful, and is as follows: "Irregular action of the voluntary muscles when stimulated by the will." This, however, excludes the case in question, for here the will is in complete abeyance, powerless to restrain or originate. But the convulsion, which is nothing more than "increased tonic and clonic contraction of the muscles," is entirely unlike most other convulsions, in that there is no loss of consciousness on the part of the individual, and in this respect is like chorea; hence the term "choreic convulsion."

But are these convulsions, both tonic and clonic, to be referred, chiefly, for their origin, to the spinal cord and its membranes, or to the brain, or both?



The following particulars would indicate that the spinal system was chiefly implicated: 1st. The motions were rhythmical and automatic in their nature. 2d. They caused no apparent fatigue. After a day of the most violent involuntary muscular action, he seemed no more fatigued than in the morning; in this respect the motion being allied to that of the heart and chest. 3d. The effect produced (reflex or centripetal action), by throwing his weight on his feet, as in attempting to arise; while at other times the extremities were at perfect rest; now rhythmical and uncontrollable motion commences, allied to the oft cited example of the titillation of the sole of the foot with a feather, causing a paralyzed limb to start. 4th. The continuance of consciousness during uncontrollable action. 5th. The tenderness of the vertebræ, and the comparative relief afforded by cupping and blisters.

But how shall this theory be reconciled with the striking fact, that, during sleep, all convulsive motion ceased; Marshall Hall saying, "*the spine never sleeps?*" We may instance the heart, which moves ever on, and never tires. Hence the necessity of regarding some other organ as involved. That organ is, unquestionably, the brain, as influenced by emotion. Chorea, it is well known, is occasionally produced by fright. Not that this trapper was alarmed for his life, but, being of an excitable temperament, keenly alive to suffering in himself and others, the emotional centres were abnormally stimulated. It was for a magnanimous act (defending an old and feeble soldier under petty tyranny) that the officer in fault placed him in the guard-house, from which he deserted. Carpenter (*Physiology*, p. 635), speaking of chorea, says:—

"It must be regarded as consisting, essentially, in the diminution of the power of the will, exerted through the cerebrum over the muscular apparatus, concurrently with an augmented and perverted activity of the sensori-motor centres. That its special seat is at the summit of the cerebro-spinal axis, where it comes into connection with the cerebrum, would appear particularly from the interruption of voluntary power; the aggravation of the movements by emotion, and their cessation during sleep. The choreic convulsion appears generally traceable to a state of imperfect nutrition, dependent upon a depraved and poisoned blood, rather than to any organic lesion. Not unfrequently the defect of nutrition seems to act as the predisposing cause of the disease, the attack being immediately traceable to mental emotion."

There is, then, undoubtedly, both a cerebral and a spinal morbid influence whence these motions originate, and at different times the one or the other may predominate. Nutritive regeneration of the brain must take place in sleep, or the organ is speedily destroyed. This necessity, acting in some unknown way, through mutual influences, suspends temporarily the functional derangement of the spinal system. In the intermediate state between sleeping and waking, the motion, in the case under consideration, diminished to a mere excessive trembling.

The origin of the spinal affection is, doubtless, to be attributed to the in-

fluence of cold. It will be remembered that he ran seven miles, and, when his clothes were drenched with rain and perspiration, lay concealed on the ground for some time, in the month of March. The herpes which occurred in this case, and in that severe one of Walsh, before alluded to, would point to repressed secretions, and a "depraved and poisoned blood." Bateman remarks of this form of eruption, that it occasionally arises from exposure to cold after violent exercise. Chorea and rheumatism, with which this man had previously suffered, appear in some constitutions to alternate, leading to the inference, that in each the "blood-poisoning" may be the same, its manifestations differing as muscle or nerve-centre is affected. In Holmes' recent *System of Surgery*, there is an interesting paper by Dr. Brown-Séquard "On the remote, indirect, or reflex effects of irritation of nerves." He says: "I can easily prove, that most of the inflammations of the various thoracic or abdominal viscera, take place through a reflex action, the starting point of which is some irritation, by cold, of periferic, sensitive, or centripetal nerve-fibres." He adds: "Of the various reflex effects of irritation of the centripetal nerves, the following are the principal: Epilepsy, tetanus, chorea," &c.

The supposition, that the foregoing was a case of successful imposture, involves the greater credulity of believing, that the subject of it possessed an accurate knowledge of the laws of the cerebro-spinal axis, and a tenacity of purpose and of physical endurance entirely unknown.

---

ART. XIV.—*Surgical Cases.* By JOHN ASHHURST, JR., M. D., one of the Surgeons of the Episcopal Hospital.

CASE 1. *Wound of the Hand from the bursting of a Gun.*—J. W., aged seventeen, was admitted to the Episcopal Hospital of Philadelphia, about 10 A. M. on Monday, October 12th, 1863. While gunning that morning, his gun had burst in his hand. When received in the hospital, his injuries were found to be as follows: The right hand was very much torn, the metacarpal bones of all the fingers being broken near the wrist-joint, which was itself involved; there had been a good deal of hemorrhage, probably from the palmar arches, and the patient was exceedingly nervous and excitable.

A stimulating and anodyne draught having been administered, etherization was induced, and the hand amputated at the wrist-joint; ample flaps, cut from without inwards, being obtained from the front and back of the hand. Several ligatures were applied, the flaps brought together with points of the interrupted suture, lead wire being the material employed, and the stump wrapped in sheet lint steeped in undiluted laudanum, covered with oiled silk, and loosely bandaged. After a few days this dressing was changed for a poultice, which in turn gave way to proof spirit; and in ten

days the ligatures had all come away, the sutures were all removed, the flaps had united throughout, presenting a band of healthy granulations, while the patient's general condition was all that could be desired. A large abscess formed on the back of the forearm, and was opened on the fifteenth day; since which time the case has advanced favourably towards recovery.

**CASE 2.** *Injury of Hand from bursting of a Gun.*—In the afternoon of the same day, another patient was admitted to the hospital, with a similar injury of the left hand, received in the same way.

This patient was eighteen years of age, but of rather a weak and unhealthy appearance. In this case, partial amputation only was performed, the thumb and two fingers being allowed to remain; the wrist-joint was opened, and a portion of the carpus on the ulnar side had to be removed. Numerous ligatures were required to arrest the hemorrhage which followed the operation, and the stump was dressed in the same manner, with lead sutures and a laudanum fomentation. In both of these cases, for a few days, the febrile reaction was considerable, and required the use of diaphoretics, at the same time that the patient's strength was kept up by moderate stimulation and appropriate diet.

In this case, also, the ligatures came away in good time, and the wound, which was extensive (the flaps, from the necessities of the case, being rather scanty), presented a healthy appearance. On the tenth day, an abscess which had formed on the anterior face of the forearm was opened, and discharged a considerable quantity of healthy pus.

Although the progress of this case will be much more tedious than if the patient had submitted to amputation of the forearm, there is every reasonable prospect of his favourable recovery, with the preservation of a very useful portion of his hand.

**CASE 3.** *Lacerated and Contused Wound of Scalp.*—T. L., aged about twelve years, entered the Episcopal Hospital October 8th, 1863, with a large lacerated and contused wound of the scalp, the injury having been received by his being thrown from an express wagon. The large quantity of sand and dirt, which had entered the wound, prevented the immediate union which was aimed at, by close apposition of the edges with strips of gauze and collodion, and the use of a compress and bandage.

For a few days, on account of some indications of brain symptoms, the patient was kept on absolute diet, which was, however, soon modified to abundant nutriment, and finally, in the progress of the case, to free stimulation. The discharge from the wound soon became very profuse, suppuration having extended under the scalp for a considerable distance; the skull was denuded to a certain extent, and it was evident that a portion of the outer table would exfoliate before a cure could be hoped for. A hectic flush now invaded the cheeks, while occasional night-sweats contributed to exhaust the patient, whose strength became gradually less. On Oct. 23d, he had a decided chill, which was repeated the subsequent days. On the 27th, symptoms of coma were manifested, which were so increased the following day as to amount to absolute insensibility. At the same time he became paralyzed on the left side of the body; he died comatose on the morning of the 29th.

The great haste with which the parents removed the body, rendered it impossible to obtain a *post-mortem* examination. I have little doubt that, had an autopsy been made, there would have been found effusion, probably purulent, over the right hemisphere of the brain, with perhaps abscesses in the liver or lungs.

The possible propriety of trephining occurred to me in this case; but had I employed that operation, I doubt not there would have been added one more case to the long list where it has seemed but to hasten the fatal issue. The repeated occurrence of rigors before any brain symptoms were manifested, rendered it probable that the pyogenic diathesis, or whatever the condition or state of body really may be which has received the name *pyemia*, was already so far developed as to render any surgical interference useless, and merely an additional source of suffering.

CASE 4. *Ligature of Brachial Artery for Hemorrhage from Wound.*—In the April number of the *American Journal of Medical Sciences* I reported, among other surgical cases, one in which I had tied the brachial artery, on account of hemorrhage following amputation of the forearm. In that case hemorrhage recurred, sloughing followed, and the patient died on the tenth day after the second, and the seventeenth from the first operation. In the case now reported, on some considerations, as bad a result might have been expected.

Wm. Henderson, private, Co. "E," 115th regiment Pennsylvania Volunteers, was wounded at the battle of Gettysburg, and entered the Cuyler Hospital, Germantown, Pa., on July 6th, 1863. The medical officer, in whose ward he was placed, having been relieved from duty in the beginning of August, he was left without regular surgical attendance, being visited by the medical officer of the day as occasion required, until August 8th, when profuse and dangerous arterial hemorrhage having occurred, I was directed by the surgeon in charge to assume the care of the patient. There were two large wounds on the ulnar side of the left forearm, a little above the wrist, through which the fingers of either hand could be made to meet. The ulna was fractured, several partially detached fragments being felt. Repeated but fruitless attempts were made to find and secure the bleeding vessel in the wound. Ligation of the ulnar artery was suggested, but, in view of the free arterial anastomosis in that part, was rejected; and the question finally rested between ligation of the brachial and amputation. The latter appeared the safer operation, but as the patient's general health was good, and the hemorrhage, though profuse, had not been long continued, ligation was chosen, as giving a chance to preserve the limb, and not materially interfering with the prospective good results of a future amputation, should such become necessary.

The brachial artery was accordingly tied in its middle third with a double ligature; the lips of the wound being brought together with a hare-lip pin, and covered with a compress and bandage; this dressing was not disturbed for six days, when the wound was found healed through nearly its whole extent.

The original wound was dressed with a fermenting poultice, and the

whole limb placed at rest on an appropriate splint. A stimulant and anodyne treatment was at the same time adopted.

The next day, *August 9th*, the temperature and colour of the affected limb were pretty good; the patient complained of coldness of the fingers, especially the little finger. *August 10th*, colour and temperature above seat of fracture normal; below, skin was dark, cool, and in some places boggy. The discharge was profuse and sanious, large masses of sloughing tissue coming away from time to time; the weather was excessively hot, the patient sweating profusely, and apparently gradually sinking.

He was now moved to a cooler apartment, and the next day (11th) was in every respect better. The sloughing was evidently circumscribed, and the danger of general gangrene of the limb apparently averted. From this time the patient rapidly improved; the ligature came away on the eleventh day (*Aug. 19th*) with the loop entire, and a week later the patient would have been supposed to have had merely a slight and rapidly healing flesh wound of the forearm, with a simple linear incision of the upper arm. This soldier was furloughed, with other Pennsylvanians, in the latter part of September.

I have reported this case with more minuteness, perhaps, than it may seem to deserve; but I have done so, because I believe its successful issue to have been exceptional; in most cases of compound fracture in an extremity, I think hemorrhage should be the indication for removal of the limb. Certainly, if this man had been exhausted by repeated bleeding, or other previous untoward circumstances, I should have much preferred the "humane operation," which I believe, in such cases, would be also the most truly conservative.

*CASE 5. Severe Injury by Railroad Accident.*—This patient, a man thirty years of age, was admitted to the Episcopal Hospital during the service of my predecessor, August 14, 1863.

He had been seriously injured by a railroad accident the day previously, sustaining a fracture of the left clavicle, and more than one severe flesh wound, besides a compound fracture of the left leg, which became the subject of resection in the continuity of the bone some three weeks later. After the operation the soft parts were approximated, and the limb, surrounded with bran, placed in a fracture-box.

Seven or eight weeks later, there was no attempt at union, the discharge profuse and offensive, the soft tissues cedematous and evidently infiltrated with pus, while the patient, suffering greatly from pain, was daily becoming weaker, and his recovery daily more improbable.

On the 24th October, more than ten weeks from his admission, I removed the leg a short distance below the knee, cutting anterior and posterior flaps from without inwards; numerous ligatures were applied, the flaps brought closely together with lead sutures, and the stump dressed with a laudanum fomentation. One week later, the flaps were completely adherent, all the ligatures having come away, and with every prospect of a rapid and satisfactory recovery.

Dissection of the amputated limb showed large sloughing abscesses, extending in various directions from the seat of injury; both fragments of bone were exposed and rough, the periosteum also being in a sloughing

condition. The extremities of both fragments were enlarged, presenting much the appearance of a false joint. [The specimen was exhibited before the Pathological Society of Philadelphia, Oct. 28th, 1863.]

In the number of the *American Journal of the Medical Sciences* for April, 1863, I reported a case of resection of the humerus, where secondary hemorrhage required amputation above the seat of injury; and I then expressed the opinion, that resection in the continuity of long bones was not truly a conservative operation. I have seen nothing since then to induce me to alter my convictions on the subject, and the case I have just related, certainly would not tend to give me a different impression. I believe the time will come, when the practice of sawing off the ends of recently fractured bones to promote union, will seem as questionable, as does to us the custom of the older surgeons, of promoting exfoliation by cauterizing the bone after amputation, or in scalp wounds.

**CASE 6. Injury of the Forearm by Machinery.**—J. M., a German, aged fifty-two years, was admitted to the Episcopal Hospital about noon of the 22d October, 1863, suffering from a very bad injury of the left forearm.

His hand had been caught in the machinery of a rope factory, where he worked, and was almost entirely twisted off, hanging by the skin merely, while the broken ends of both bones projected from the wound. He had lost a good deal of blood, and was very much prostrated, suffering greatly from pain and nervous exhaustion. I confess I hesitated for a few moments, as to whether an operation would be proper in his feeble condition; but his terribly mangled limb was so evidently depressing him, and more than the amputation would probably do, that I concluded to operate at once, without waiting for further reaction. He had already been well plied with whiskey and laudanum, and the event justified my course; for the pulse rose immediately under ether, and was decidedly better when the operation was concluded than at its commencement.

The amputation was done with anterior and posterior flaps, cut from without inwards, the bones being divided a few inches below the elbow, and the stump dressed with laudanum, as in the previous cases. Consecutive hemorrhage during the following night required the stump to be opened, when a vessel was found and secured which had not bled during the operation, probably from the low state, at that time, of the patient's arterial circulation.

This man, during the twelve hours succeeding the operation, sank very low, being at times almost pulseless; but through the unremitting and skilful care of the resident surgeon, Dr. Gittings, happily rallied, and the next morning was as well as under the circumstances could be anticipated.

On October 28th, this patient had a chill, repeated twice within twenty-four hours, and once or twice on subsequent days. While the appearance of the stump was healthy, his general condition became gradually worse. He was at times quite soporose, and on the twelfth day complained of inability to move the left leg. From this time he became slowly weaker, and expired early on the morning of November 4th, the fourteenth day from the amputation.

An autopsy was made eight hours after death, with the following results:—

*Rigor mortis*, strongly marked.

*Cranium*, not examined, owing to the haste with which the autopsy was necessarily conducted, the friends of the deceased being anxious to remove the body.

*Thorax*. Right lung completely adherent; left lung free, except in some adhesions to the diaphragm; considerable effusion in the left pleural cavity. Both lungs congested, and the bronchial tubes filled with frothy mucus. Heart decidedly fatty; old fibrinous clots in both ventricles, extending into the aorta and pulmonary artery respectively, and binding together the chordæ tendinæ on either side.

*Abdomen*. Liver fatty; left kidney rather small, nodular on its surface, and when cut open presenting a granular appearance; it might, not inappropriately, have been described as a "nutmeg" kidney; a small serous cyst was found upon its surface. The right kidney unusually adherent to its capsule, but healthy. No other abnormal appearances were observed.

There is no question in surgery more perplexing than, in a severe compound fracture, or other serious injury to an extremity, to decide when the precise stage of reaction has arrived, at which it would be proper to proceed to operative interference.

Many surgeons of skill and experience would on no account perform an amputation before the patient had completely reacted; and, in consequence, a certain proportion of their patients die unamputated. They, of course, in this way lose fewer cases after operation than if they were less cautious, but I question if they do not lose some cases that a timely operation might have saved. Every case must be decided by itself, no general rule being applicable to all. If the injury were not very severe, and the *shock* apparently more mental than physical, I should be disposed to delay; for in such a case time of itself would be restorative. But if the limb be entirely torn off, or otherwise very much mangled; if the hemorrhage has been profuse, and the patient seem sinking rather than improving, I should be inclined to think the operation a less evil than delay. Of course, I would not advise amputation in *articulo mortis*, nor if death appeared inevitable under any circumstances; but I am sure that the pulse often will be found to rise even during the operation (especially if a moderate quantity of ether be employed); and that he who always waits for complete reaction will sometimes tarry till his patient has passed into another world. Caution must sometimes give way to decision; and a surgeon should never permit any personal consideration of success, or the want of it, as an operator, to outweigh what he honestly believes to be for the best interest of the patient committed to his care.

The mode of amputation is a matter of very secondary importance. The operation by double flaps, cut from without inwards, which was performed in the cases narrated above, seems to me, under ordinary circumstances, the best; for these reasons: It exposes the centre of the stump better than the circular operation, and is more easily and rapidly performed; while it insures the skin being cut longer than the muscles, which is not the case where the flaps are made by transfixion. It, moreover, requires the use of

but one knife for the several steps of the operation, thus simplifying the surgeon's *armamentarium*, sometimes a matter of considerable importance.

The plan of dressing the stump with undiluted laudanum secures more ease to the patient than any other; while it obviates, as far as possible, the risks of sloughing or tetanus.

---

ART. XV.—*On Diphtheria and its Treatment.* By C. D. MEIGS, M. D.,  
Emeritus Professor of Midwifery in Jefferson Medical College, Philadelphia.

NEAR IVY MILLS, DEL. Co., Nov. 23, 1863.

MY DEAR DOCTOR HAYS: A few days since I received, late in the evening, a letter from a physician in Missouri, asking me to express for him my opinion on the treatment of a desolating epidemic of diphtheria in the district in which he practises his art. That letter, which was laid on my table, was lost, so that when I had written out the answer contained in the paper now inclosed and was ready to address it, I could by no means do so, having thus unfortunately mislaid or lost the names of both the physician and his post office.

If you will be so kind as to look over my answer and decide whether it might properly become a page of your Medical Journal, I should be very much gratified to see it in your next number. I am much pained to think that the gentleman, my professional brother, should have the least ground to consider me as a person rude enough to disregard an interesting communication that produced in me anything but feelings of indifference to him. As he is probably a reader of your work, I hope, in this way, to give him my answer.

I rest, my dear Doctor,  
with long regard, your obliged  
friend and servant,

CHAS. D. MEIGS, M. D.

To Dr. L. HAYS, Editor, &c. &c.

DELAWARE Co., PA., Nov. 15, 1863.

MY DEAR SIR: Your esteemed favour was handed to me here in the country (eighteen miles from Philadelphia) yesterday evening, and I now have to thank you for the honour of your confidence to the extent of asking my opinion in a case so embarrassing as yours. I think that, in a very protracted experience as physician, I have found nothing more painful to my sensibility than the incidents I had to contend against in destructive epidemics. Hence I am in a way to sympathize with you in the annoying circumstances attending the breaking out of epidemic diphtheria in your vicinity.

I shall not decline, in pursuance of your invitation, to give you some of the views I have taken on the subject of that pernicious epidemic, and while I apprehend that you will certainly dissent from my opinions, I claim



at least your candid appreciation of the motive for expressing those opinions to a stranger who asks me to speak on the subject.

Mankind are much misled by names—indeed it is quasi true, to say that names are things. The new nomenclature introduced by the French people, of diphtheria, is a substitute for the plain old term putrid sore throat, which we were much accustomed to meet with in the early part of the century; but which was very little prevalent from about 1825 to 1850.

A man conversant with this putrid sore throat and equally familiar with epidemic scarlatina cannot, I think, discover any shade of difference between scarlatina and diphtheria, except in the presence or absence of the eruptive symptom. In the midst of the most intense prevalence of scarlatina, cases are often met with in which none of the cutaneous symptoms are observable, and such diphtheritic forms are, indeed, the most dangerous and most fatal; they furnish examples of what is called by the vulgar, and even by physicians, of scarlatina *struck* in, just as the people of the South used to talk of hives *struck* in, of measles *struck* in, and smallpox *struck* in.

The mucous system is certainly nothing more nor less than an internal skin, minus the dermal membrane, and is liable to diffuse inflammation as the skin itself is; when inflamed it tends to produce inflammatory exudation, and under the reign of vigorous epidemic causation, this exudation proceeds with the greatest rapidity to *obstruct*, and at last nearly *occlude*, the respiratory passages as well as those of deglutition.

I have ever supposed that the fatal tendencies of the disorder are attributable more to accident in the disease than to the real disease itself, for I have considered that whatsoever does, even in a *very small measure*, cut off the supply of oxygen to the pulmonic circulation, strikes a blow at the very *principle* of animation, which is the oxidation of the tissue. If an individual attacked with an epidemic febrile affection should by any means whatever be deprived of 20, 40, 50, or 60 per cent. of the oxygen required for carrying on the operations of physiological life, he could hardly be expected to resist the fatal tendencies of his fever, to which is superadded a more or less complete asphyxiation of the entire nervous system.

The foregoing remarks may serve, I trust, to show you that I consider the main point of duty in the conduct of the cases, to be the selection of measures for obviating the tendency of the disorder to add to the other ills the crowning ill of asphyxiation, and this can be effected only by such measures as may forestall, lessen, or cure the exudative tendency of the disease.

Your fatal epidemic would prove far less fatal if the population could be rightly instructed as to the dangers of delay in the application of remedies. Too many of them are prone to defer the requisite attention, so that, when the physician is called in, the asphyxiative deposits are already begun, and sometimes gone to an incurable stage. It is vain to attempt to cure a

man already choked to death ! If called early in the cases, the fatalities ought to be few in any sensible man's practice.

Nitrate of silver is a *remedy* for the disease, but its power to cure depends not on its *name*, but on its dose. I have no doubt it is most generally a very mischievous application, because it is ignorantly used as *escharotic*, simply because its *name* is the name of an escharotic. In putrid sore throat there is no occasion for the use of an escharotic, what is wanted is an alterative, not a destructive.

If you will light a spirit lamp and set it on a table and look at the flame, you will perhaps say : "Yon flame will burn my finger if placed in it." True enough, if you hold your finger there ; but if you will pass your finger rapidly through the flame you will not feel the heat ; if slower you will feel it ; if slowly you will be burned : if you hold it in the flame long enough the burn will be a crispatation. Now all this is equally true of nitrate of silver. With it you can make a contact absolutely indifferent, or you can warm, or stimulate, or burn and destroy with it.

The question, then, as to nitrate of silver is, what shall be the dose ? There is no other question about it. But that question is a most difficult one. Make a solution of the nitrate, say two or three grs. to the ounce of water, and taste it. If your impression is that it is strong enough, and not *too* strong, apply it by means of a sponge or a camel-hair brush to the inflamed tissue. If it gives the patient *any* pain, you have done him *harm*, which you have no right to do. I should say that you ought not to use more than three grs. in the ounce, and perhaps two grs. to the ounce would be more likely to be useful, particularly in the very beginning of the attack. Don't apply it oftener than once a day. Use a gargle made by mixing a half teaspoonful of Cayenne pepper, a teaspoonful of salt, a wine glassful of vinegar, and half a pint of *boiling* water. Let the mixture rest for half an hour, then strain the liquor from a doubled cloth, and use a little of it for gargling the throat many times daily. If you come to a very bad case, fill a basin with water, with a block of ice in it, wring out a large towel from the iced water—wring it *very* hard—and wrap it round the throat—all round—and change it often. If the asphyxiation is really begun, give the patient hot brandy and water, or hot whiskey punch—plenty of it. It is vain to give *much* food—much food may overload the organs. The man is too ill to digest and assimilate as healthy people do. But as to drinks, you can hardly err in the abundance.

But, dear sir, I cannot write you a treatise on putrid sore throat, and must beg you to accept the above few hints of a method which, if you will carefully consider it, seems to be the most likely of any that I know to make your difficult, crooked path easier and straighter, and so I rest with much respect and sympathy, your obedient servant,

CHAS. D. MEIGS.

## REVIEWS.

ART. XVI.—*Mental Hygiene*. By I. RAY, M. D. Boston : Ticknor and Fields, 1863. 12mo. pp. 338.

WHEN Dr. A. Brigham wrote his admirable essay on "Mental Culture and Excitement," it *was* true that "the importance of Physical Education appears in modern times to be nearly forgotten." But it is no longer so. In this country Thoreau, Windship, and Dio Lewis have had their full share of attention, as Ling and others have had in Europe. Yet the field in which they have sown is quite open to useful labour. Especially are those welcome who show how, in preserving the bodily energies and developing them for their own sake, we may at the same time advance the development and conserve the power of the mind; and who enable us, by the light of experience and profound knowledge, to guard against the dangers which beset our mental nature in its own thinking and emotional activities. This Dr. Ray has done, and done well, in the modest volume before us. It is so concisely written, that we should despair, were it desirable, of making any such analysis of its contents as would at all substitute its perusal; and write, therefore, rather with the hope of encouraging our readers to become masters of its contents for themselves. While it is intended chiefly for the unprofessional student, and is well adapted to the thoughtful of all classes and pursuits, the ideas and facts conveyed are such as every medical man ought to thoroughly understand, and constantly use in his profession.

The work is divided into five somewhat extended chapters; considering, in turn, mental hygiene as it is affected by cerebral conditions, by physical influences, by mental conditions and influences, by the practices of the times, and by tendency to disease.

The fundamental principle of all true mental hygiene is, that the manifestations of the mind and the organic condition of the brain are more or less affected by each other. Dr. Ray has passed as safely, perhaps, as any other modern writer over the question *how* the body and mind are mutually related. He takes the view which Dr. Bucknill would probably call *somato-psychic*; as distinguished from the ultra-spiritualistic view on the one hand, and pure materialism on the other. There will have to be admitted hereafter, in idea if not in terms, a further conception, which we may presume to call the *pneumato-psychic*; which, leaving to Bucknill and Mayo the question whether *mental* phenomena, common to man and the brutes, may or may not be simply functions of cineritious neurine; and to Owen and Huxley, or Lyell and Dana, the inquiry into man's place in creation as an animal, yet insists that the great difference between him and all other creatures is in the possession, special, not in degree, but in kind, not only of *νοῦς*, or *ψυχή*, but also of *πνεῦμα*, or soul.

Dr. Ray admits too much, it appears to us, in favour of phrenology, in allowing that "in a few instances, both the existence and the place" of

asserted cerebral organs have been established by abundant proof. Where they have urged evidence the most plausibly, as in the case of the cerebellum, comparative physiology, as well as (more doubtfully) experiment, has refuted it. It is true, at the same time, of the system, as instituted by the able minds of Gall, Spurzheim, and Combe, that "its analysis of the mental phenomena is clear and precise, indicating—what metaphysical inquirers seldom have—a shrewd observation of the springs of action, and a profound insight of the relations of man to the sphere in which he moves."

When minds are raised from the state of a native Australian to that of a cultivated European, from the level of the unthinking multitude to the height of the Bacons and Newtons of the world, is this a step towards the indefinite improvement of the race? In other words, may the improvement of the individual become congenital in his offspring, and thus furnish a new starting-point, at every remove, for higher advancement?

"In reply," says our author, "we need only refer to the well recognized laws which govern the transmission of qualities in the inferior animals. These laws warrant the belief that, by complying with their requirements, the traits of the individual, mental as well as bodily, may be made permanent in the race, with such limitations as are imposed by the distinctive character of the species."

"The remarkable quality which stock-breeders succeed in rendering permanent in the domestic animals—fleetness in one, power in another, size in another, a certain relation between bone and muscle in another—represents but a small fraction of the whole constitution. The fleet Arabian cannot be considered as nearer the point of equine perfection than the immense English dray-horse; nor would any one but a Smithfield drover contend that a Berkshire or a Suffolk is a worthier specimen of the porcine race than the wild boar of the forest. There has not yet been obtained in any particular breed a considerable number of desirable qualities; for the general rule is, that each special excellence is obtained at the expense of some other."

"We have no reason to suppose that, by any possible scheme of training and breeding, finer specimens of the race can be obtained than Pericles and Alcibiades; but we are warranted in believing that by this means individuals of distinguished general excellence would be far more common." (pp. 12-14.)

To promote this is the great object of mental hygiene; not to produce great geniuses, which come occasionally "by nature," according to a law not understood—but healthy, vigorous, well-balanced minds. Full understanding and observance of the laws and conditions of mental development and action may attain such a result.

The two indispensable requisites to a sound and vigorous mind, are a brain free from all congenital tendencies to disease or deterioration, and a healthy condition of the other bodily organs. The "laws of breeding" determine the first of these. At least one-half of the inmates of every hospital for the insane are the offspring of parents who have been insane or highly eccentric at some time in their lives. And the mental constitution may be vitiated by the presence in the progenitors of other diseases than insanity, especially of epilepsy, hysteria, chorea, scrofula, rickets. This is not commonly appreciated, although it is emphatically stated by our author. It is shown not only in examples of positive disease, but often in a reduction of the moral and intellectual capacity, and "a remarkable activity and prominence of the animal propensities." This has been observed and recorded on a large scale in some of the old cities of Europe. Not only in asylums, but in prisons also, the history of many subjects, if analyzed, would show defective cerebral endowment traceable to agencies affecting their organization, either directly or by inheritance. Chadwick

observed that many of the lowest class in London were driven to drinking gin as affording a temporary relief to the feelings of depression and exhaustion produced by living in a noxious atmosphere; and that individuals have been known to abandon the habit spontaneously when they were enabled to reside in a less crowded locality, where the air was pure.<sup>1</sup> Says Dr. Ray:—

“The missionary may do good service in the dwellings of the ignorant and depraved, but active ventilation, thorough sewerage, abundance of water, will be found, eventually, no less efficient in the work of reform and elevation. To check the increase of crime, improve, if you please, your penal legislation and penal discipline, but, above all things, improve the dwellings of the poor. Render industry and virtue as attractive as possible, but never cease, by all practicable means, to prevent the production of tubercle, rickets, scrofula, and all defective or unequal developments. Encourage frugality and forecast, but discourage, by every consideration that science has furnished, the marriage of the infirm, the sickly, and the deformed.” (p. 23.)

More time is given by our author than, perhaps, is necessary, to dispose of the denial by Buckle of the law of hereditary transmission of organic peculiarities. Dr. Ray shows, very clearly, that, while the unity of species is maintained by the similarity throughout nature of offspring to parent, yet the individual possesses two orders of characters; one in common with all others of the species, and another peculiar to himself or a few others. It is no part of the doctrine that such transmission is uniform and universal. Both parents, moreover, confer traits of their respective families; and the union of opposing peculiarities, by neutralization, as it were, may sometimes aid in preventing marked signs of direct descent. Special traits, too, “especially those of a morbid or abnormal character, are finally absorbed in the characters that constitute the type of the species.”

One phasis of hereditary transmission affecting mental character is far from being properly understood.

“The transmitted defect is confined to a very circumscribed range, beyond which the mind presents no obvious impairment. The sound and the unsound coexist, not in a state of fusion, but side by side, each independent of the other, and both derived from a common source. These persons may get on very well in their allotted part, and even achieve distinction, while the insane element is often cropping out in the shape of extravagancies or irregularities of thought or action, which, according to the standpoint they are viewed from, are regarded as gross eccentricity, or undisciplined powers, or downright insanity. When a person of this description possesses a high order of intellectual endowments, the unhealthy element often seems to impart force and piquancy to his mental manifestations, and thus increases the embarrassment touching the true character of his mental constitution. Lord Byron was one of the class in question; and the fact gives us a clue to the anomalies of his character. The ‘vile melancholy’ which Dr. Johnston inherited from his father, and which, to use his own expression, ‘made him mad all his life, at least, not sober,’ never perverted the exercise of his intellectual powers. He astonished people by his extraordinary singularities; yet the march of his intellect, steady, uniform, and measured, gave no token of confusion or weakness.” (pp. 31-3.)

Does not this suggest the *cerebral dualism*, upon which, after Sir H. Holland, Dr. Wigan wrote? It is useless to speculate, however, upon a topic so far beyond present investigation. A more facile and important

<sup>1</sup> Brodie, *Physiological Inquiries*, p. 75.

subject is that of the influence upon mental development, of the intermarriage of blood relations. Dr. Ray asserts broadly that the great physiological law, that like produces like, depends upon this condition, that the parents shall not be nearly allied by blood. Obvious in the domestic animals, he considers the effect of neglect of this condition to be less conspicuous in man. Other authorities of late have taken the reverse view. In fact, very strong arguments are brought to disprove the influence of close intermarriage, *per se*, in producing degeneration. Dr. G. W. Child<sup>1</sup> has urged with much force the examples of herd and turf breeding, in which superior animals are well known to be produced under a breeding so close that no allowed human marriages, since the days of the Ptolemies, approach it. An able writer in the *Westminster Review* more fully analyzes the argument from the statistics of Drs. Bemis and Howe, as well as from those of Boudin, Devay, and other European investigators. Comparing these with Darwin's inquiries into the fertilization of orchids, and Hallett's remarkable results in pedigree wheat, this writer comes to the conclusion, different from Dr. Ray's, but not feebly sustained, that evidence is yet wanting to show any other effect of close breeding, in men, animals, or plants, than the intensification of peculiarities; which, if they be morbid, by their increase and perpetuation involve a family degeneration. Practically, however, the rule of hygiene is nearly the same; since there are no families so free from taint or tendency of a diseased kind as to be safe under the chances of its development by close breeding.

Dr. Ray thinks this mode of causation, by frequent intermarriages, to be very important in some communities as a promotive cause of insanity. Small, secluded towns and agricultural neighbourhoods, of stationary population, show a large proportion of mental derangement. Facts do not seem to sustain the theory that insanity is more common in commercial and manufacturing towns than in agricultural communities. Dr. E. Jarvis' statistics, collected in 1845, show in Massachusetts the absence of any connection between the disease and the pursuits of the people. The main manufacturing places, Lowell, Lawrence, Worcester, and eight others, have 1 insane person in 701; while in the counties of Berkshire, Hampshire, and Franklin, with a rural population very little changeable, we find 1 insane in 258. A similar class of facts was observed in Scotland by Her Majesty's Commissioners appointed in 1855, and they distinctly allege that intermarriage is the cause of the disproportion.\*

Another frequent source of insanity is intemperance; more potent, Dr. Ray declares, in its agency in this mode upon the offspring than upon the inebriate himself. A remarkable fact is considered by him to be well established; namely, that the deteriorating influence of alcoholism upon procreation is not always persistent, but may be removed by removing the cause. An intemperate parent thus had four children, two of whom became insane, one was an idiot, and the fourth died young, in fits. Four children born previous to the period of intemperance, and two after the parent's reformation, are all sound and healthy.

A normal and vigorous condition of the body is an important requisite of the highest degree of mental soundness and energy. This has not always been believed; it has been common even to suppose bodily imper-

<sup>1</sup> Brit. and Foreign Medico-Chirurg. Review, April, 1862.

\* Sir A. Halliday asserted a like disproportion in England; but Dr. Tuke (Bucknill & Tuke, on Insanity, p. 53) disputes the accuracy of his computations.

fections to be favourable to the activity of the mind, as blind persons are known to acquire uncommon acuteness of hearing and touch.

"No one can be insensible to the moral grandeur of such triumphs of mind over matter, as were exemplified in Pascal, who, while tortured with infirmities that embittered his existence, and hallucinations that destroyed his peace of mind, launched upon the world that imperishable model of wit, raillery, and eloquence, the Provincial Letters; in Cowper, surrounded nearly all his life by clouds and darkness, but achieving an honourable place in the literature of his country. . . . Seldom, however, is bodily ailment met by such indomitable power of resistance. In those who are habitual invalids, all the surplus energy is needed to meet the demands of the suffering organs." "Very few of those men who have achieved great intellectual renown suffered much from ill-health." (pp. 47-50.)

Bacon and Newton in science, Shakspeare and Scott in literature, Napoleon and Wellington in military life, are cited as examples of great brains sustained by strong and enduring frames. Of Napoleon, it is said that

"Once he suffered from the frailties of the flesh, and on that occasion he met his first decisive check. On the fruitless field of Borodino, where his fate depended upon the result, he remained far in the rear, dull and dejected, learning the progress of the battle without interest or emotion. He was exhausted by fatigue and anxiety, he had taken a severe cold over night, and on that day he had an attack of an eminently painful disease." (p. 52.)

Kant announced that he could, by an effort of will and thought, not only bear, but annul the consciousness of an attack of the gout; but he admits the strain upon his nervous system. Colchicum and prophylactics would probably have saved more to the economy of his pure reason as well as to that of his comfort.

Although the rate of mortality from all causes has been steadily declining, yet it appears that disease and infirmity were never more prevalent in the civilized world than at the present day. No doubt many are now kept alive as valetudinarians who once would have died early, either under or for want of treatment. Only medical men can appreciate this fact; but it would seem that infirmity and disease are now the rule, and health the exception. Dr. Ray's account is certainly gloomy as to that part of the country under his observation. We cherish a hope that it is not equally true of all portions of our population.<sup>1</sup>

"Who can find among his acquaintances a single family every member of which has enjoyed uninterrupted health for half a dozen years together? It was not always so. Those much enduring men and women who encountered the privations of the colonial times have been succeeded by a race incapable of their toil and exposure, whom the winds of heaven cannot visit too roughly without leaving behind the seeds of dissolution. It would be inconsistent with my present purpose to inquire how it happens that a people suffering as little as any the evils incident to the extremes of social condition, should nevertheless be characteristically prone to every form of mental and bodily ailment. I can notice it only as one among the most efficient causes of insanity in this country; and so well is this fact recognized by those who have charge of hospitals for the insane, that whenever the causes of the disease are given, *ill health* predominates over every other in the number of its victims. By far the largest number is contributed by the female sex." (p. 53.)

One reason for this is believed by Dr. Ray to be the variable condition of society in America; inducing too often an undue intensity of effort, in

<sup>1</sup> Herbert Spencer asserts a similar decline of health in the present generation of the English as compared with the last.—*Treatise on Education*, p. 259.

both sexes, for advancement. De Tocqueville long ago noticed this, as affecting even the demeanour of our people. "I thought," said he, "that the English constituted the most serious nation on the face of the earth; but I have since seen the Americans, and have changed my opinion." All travellers must be struck with the contrast, on the opposite shores of the Atlantic, in the rate at which men live. Though national power may seem to gain, for a time, by this intensity, yet, in the end, as it is extreme, and even morbid, hygienic laws may be painfully demonstrated, by the exhaustion of physical and cerebral force in the race. No such result threatens us yet; but we may regard the warnings of Dr. Ray as most timely and important.

Chapter II. of our book is engaged with mental hygiene as affected by physical influences. That the brain suffers more from bad air than the body generally, is a truth not often thought of. Even climate affects mind by atmospheric conditions, be they good, bad, or simply peculiar. Our air is thought by Dr. Ray to be more exciting than that of Europe; and thus he thinks a part of our national temperament may be accounted for. Even Germans, Irish, and English show this effect in our atmosphere, at least in insane hospitals; where, Dr. Ray avers, "more excitement will be noticed in a single visit, than will be seen in European, and particularly English, hospitals, in a whole week or month."

Bodily exercise is dwelt upon, very judiciously, in the book before us. It is urged that it should not be taken like physic, as a duty, but in such genial modes as will be the more useful because enjoyable. English out-door habits are much more favourable to the long life of intellectual men, than our own. The endurance of Wellington, Palmerston, Lyndhurst, Brougham, and others, is maintained by such habits. The radical fault in our modes of exercise, Dr. Ray considers, is, that they are unaccompanied by agreeable mental impressions. Climate is in part to blame for this; its vicissitudes and extremes with us making it much less easy to provide for field-sports or other exhilarating exercises, in the open air. Much more might be done, however, than is done, in this direction.

Diet is very well discussed by our author, in its relations to cerebral activity. As a general rule, the diet most conducive to bodily health and vigour, where the bodily powers chiefly are exercised, will be found most conducive to mental health and vigour in those chiefly engaged in mental employments; although the former may require more. Dr. Ray believes that most persons in this country consume a larger amount of animal food than is advantageous to their health and strength. Scotch farm laborers live almost entirely on oatmeal; yet no men do more work, or show better health. In the California mines no persons better endure hardships, or accomplish greater results, than the Chinese, who live chiefly on vegetable food. The standard of health is low among our people; their ailments for the most part having a digestive origin, so as to be attributable to errors of diet; of which Dr. Ray considers the principal to be the use of too much animal food. This may be correct, but we strongly doubt it. As our author admits, it is a fair question, even in regard to alcoholic stimulants, whether our artificial and incomplete civilization has not so changed the human constitution from its normal condition that it may require a diet somewhat different from that most suitable in its original state.



"The ox and the horse in their native abodes thrived on grass and shrubs, but this would be indifferent provender to the horse and ox of our times. The fruits, and the field, and the crystal stream may have been amply sufficient for man in his state of primeval innocence, but does he not, under the wear and tear of civilized life, require a diet more substantial and stimulating, like the creatures just mentioned? Are not tea, coffee, wine and spirits necessary, in some degree, to maintain the bodily and mental powers in their most vigorous condition amid the exhausting influences, the duties, the pleasures, the joys and the sorrows, the toil and the conflict, of artificial life? The principle involved in the question seems to be clear enough. If the powers are habitually urged beyond an easy activity, or the stamina of the constitution have become enfeebled by hereditary defects, those articles may be salutary, just as medicine is salutary when actual disease is present. It is but an illustration of the great law that pervades all nature, that one abuse necessarily leads to another." (p. 84.)

The practical application of the principle is not so clear. The history of literary men is appealed to, to show that many of those who have laboured the hardest and longest were decidedly temperate, if not abstemious; Newton, Locke, Gibbon, Burke, and Scott, for examples. It is not impossible that one or two of the same names might be adduced by the advocates of moderate stimulation, in favour of their side of the question; as they were far from "teetotallers," and, indeed, temperate rather in the English than the American sense. The conclusion is arrived at, that, to the young who are sincerely seeking the right course in regard to the use of stimulating drinks, Dr. Ray does not hesitate to say, as the result to which the most careful and candid observers have arrived, "You may safely resolve to abstain entirely, until advised to the contrary by a competent physician."

A natural transition from this topic leads to that of the treatment of intemperance, or what other authors have called *methomania*. Dr. Ray speaks too discouragingly of the probable utility of retreats for the inebriate. It is true, as he alleges, that the impossibility, under current legislation, of detaining persons so affected when, although not cured, they are sober and demand their freedom, is fatal. But it is an important question, in which medical jurists should take an active interest, whether laws might not, and ought not, to be framed to meet this difficulty, which would not violate any constitutional rights. The homicidal insane may require long detention, for the safety of society, even though without delusions, and, for the time, without morbid impulses. So should the methomaniac; as still more liable to a return of his disease, and almost as dangerous, to himself and others. Although "*compos mentis*," he is hardly *compos animi*, until the control of his will over his morbid appetite has been restored.

Sleep, and its importance to cerebral health and vigour, are next discussed. The injurious effects of its deprivation are illustrated by the cases of Newton and Southey. Hugh Miller's might also have been alluded to, as yet more dreadful. The remarkable statement is made, without reference to the authority for it, that Pichégru, the French revolutionary general, went through a year's campaign, sleeping but one hour in the twenty-four, and still enjoying good health. We cannot help believing that scrutiny might compel some modification of this account. In an analogous instance, some writers have declared that Napoleon I. slept but four hours on the average, in twenty-four. Bourrienne, his secretary, however, states in his memoirs, that he knew him to be a good long sleeper; doing without rest only during the pressure of a great battle or other emergency; and then, when such an occasion was over, sleeping twelve or eighteen hours at a

stretch. Six to eight hours of sleep are stated by Dr. Ray to be necessary to the highest condition of bodily and mental health. Persons who find difficulty in obtaining sleep, should avoid study or excitement near bedtime.

"Overworked brain" is an affection more and more common of late years. Forbes Winslow has written admirably upon it. Dr. Ray confirms his experience.

"The lawyer, the doctor, the minister, the scholar, the merchant, the mechanic, all apparently act on the presumption that their brains are made of iron, which no conceivable amount of use can weaken or derange. In many of them, the brain is kept in a state of incessant activity. As a consequence, it is not strange that every description of mental infirmity should have increased among us of late, to an extent that has no parallel in former times. In the prime of life, in the midst of usefulness, men rapidly break down, and, after hovering around their customary haunts for a brief period, disappear forever. By insanity, paralysis, and other organic lesions, brains are now 'used up,' in the popular phrase, with a frequency that is full of instruction, if we would but heed it. Were we to indicate that feature in the medical constitution of our times, which distinguishes it from all others, it would be our large proportion of cerebral affections." (p. 105.)

Mental activity is beneficial, at the same time, if not indispensable, to mental health. Dr. Brigham is emphatic in asserting this,<sup>1</sup> although he wrote chiefly to warn against excessive and premature excitation of the brain. Long life has been common amongst literary men. Of one hundred and fifty-two *savans*, taken at hazard, one-half from the Academy of Belles-Lettres, the other from that of Sciences of Paris, the average term of years was above sixty-nine.<sup>2</sup> Savages have, as is well known, a much shorter average life than inhabitants of civilized countries.

From twenty to forty-five is believed by Dr. Ray to be the period of greatest mental capacity and endurance. Some remarkable men have displayed undiminished power in advanced age. Plato, Sophocles, Cato, Isocrates, Bacon, Milton, Burke, Cuvier, Corneille, Goethe, Humboldt, were examples of this. They were, however, exceptions to the rule, in this as in their possession of extraordinary abilities.

Six hours a day of close mental application are all that Dr. Ray would allow as a safe average in view of mental hygiene. Many who go beyond this, accomplish less in the longer than they might in the shorter time, on account of the jaded condition of the brain; their works "smell of the lamp." Sir Walter Scott, while he preserved his health, would allow himself but six hours. Bulwer, in a discourse a few years since, mentioned three hours as his daily average; and yet few men of our day have accomplished so much, either in reading or in original mental creation. Judged by such a standard, all successful professional men are overworked. It appears to us, however, that the absence of *continuity* of labour, in the medical profession for instance, is a great advantage towards the economy of brain force. That is, the short intervals that intervene between one task, *e. g.*, one patient and another, make, in the aggregate, a considerable amount of repose; just as the spinal marrow and heart-muscle have, in the pauses between each two respirations and pulses, a rest which, on the whole, almost equals that which the cerebrum takes at once in sleep. Otherwise, we do not see how a medical man could ever survive full practice for a dozen years; or a member of a cabinet, a single presidential term.

<sup>1</sup> On Mental Cultivation and Excitement, p. 151.

<sup>2</sup> Brigham, *op. citat.*, p. 152.

Full attention, in many well-written pages, is given by our author to the mental hygiene of the education of the young. Emphatically it is asserted, and proved by citation of indisputable facts and examples, that, very often, if not generally, school boys and school girls are tasked too heavily, and confined too long. Ruined health, and even insanity, follow in many, especially of the female sex. The absurdity, in the case of the latter, of ending the time of study early in youth, and yet cramming them, during the few school years, like subjects for an intellectual *paté de foie gras*, is too palpable, one would think, to require exposure; and yet this is the widely prevailing system. Seven years Dr. Ray considers a sufficiently early age to begin school, in either sex; and certainly the immature brain, as Dr. Brigham so strongly urged, should never have imposed upon it an amount of task-work, either in time or quantity, so great as that which would be normal for an adult. As Tissot said, "Of ten children destined for different vocations, I should prefer that the one who is to study through life should be the least learned at the age of twelve."

A most important chapter is that of Dr. Ray upon mental hygiene as affected by mental conditions and influences. Less than any other, however, will it bear abridgment; it should be read as a whole. We can only call attention to some of its principal points.

Partial or one-sided mental culture is an almost universal error. It is a settled truth, that no power of the mind can be entirely neglected without detriment to some of the rest.

"Even where exclusive cultivation of one power is manifested in a devotion to poetry or the fine arts, the actual performance will always evince imperfections that spring from the neglect of the other faculties. The great poet or painter is far from being a man of one idea. He achieves his position, not more by the flights of his fancy, than by the wisdom that informs and animates his ideas. The plays of Shakspeare abound with the practical sagacity of Bacon's Essays; the grandeur of Milton is derived, in no small degree, from his rich and varied learning; Leonardo, Michael Angelo, Raphael, sounded the depth of philosophy, and their immortal works bear many a trace of their large and liberal culture." (p. 145.)

Undue cultivation of the imagination, or "ideal power," is referred to by Dr. Ray as one of the most prolific sources of mental inefficiency in this day and generation. In the absence of a controlling power of reason or self-discipline, it predisposes more than most faults to mental disease.

Mischief follows the concentration of the mind upon a single sentiment, impulse, or object, even when the latter is in itself most desirable and laudable. The idea of religious obligation, divorced from that of benevolence; or the sentiment of benevolence, allowed to usurp the whole domain of feeling, thought, and action, may so warp the nature as to pervert emotions, intended to be the highest and most wholesome in our being, into causes of disturbance or derangement. The *ill-balanced* mind is always so far in a morbid state as to be, not only practically inefficient and unreliable, but in constant danger of total overthrow. It is the highest function of education to regulate or prevent such errors in the mental tendencies.

Sympathy and imitation are alluded to by Dr. Ray as more powerful agencies in affecting the human mind than they are generally supposed to be. From the greatest social movements down to the moral changes of the humblest individual, all mental phenomena exhibit their power.

"To learn what a man will do in a given social emergency, we must look, not only to his special training and the prominent qualities of his character, but also to the currents of feeling in which he moves, and the tone of thought which prevails around him. The secret springs and forces of society are to be sought for, not in the treatises of morality and philosophy that happen to be in vogue, but in the newspaper, the pamphlet, the novel, the song, where without concert or mutual understanding, are displayed the objects and aspirations by which large masses of men are swayed. In this way is revealed the hygienic condition of the popular mind." (p. 158.)

Electrically rapid sympathetic movements may, sometimes, more fully explain the occurrence of insanity, or of unexpected crime, than any cause acting through the reasoning powers. The body as well as the mind may be involved in what might almost be called a contagious or epidemic disturbance. John Wesley and his brother could not resist the infection of outrageous laughter which, as he saw it among his converts, appeared to him the work of Satan. The *mal de laïra*, or barking mania, of Amou, France; the *trembleurs* of Cevennes, and the *convulsionnaires* of St. Medard are notorious examples on a larger scale. The "jerking" revivals of our Western States near the beginning of this century, and the "physical symptoms" attending religious excitement in the great movement in Ireland in 1857-8 illustrate the same principle. Even suicide may become quasi-epidemic. Although mania never does so, properly speaking, yet often its development is clearly traced to sympathy and imitation. Dr. Ray selects as examples of this the "demoniacal possession" of the nuns at the Ursuline Convent at Loudon, France, in the seventeenth century; and the witchcraft delusion of New England.

As a practical lesson from all these facts, it is strongly advised, that, by all whose nervous system is very susceptible, intimate association should be avoided with those who are affected with nervous infirmities, such as chorea, hysteria, epilepsy, or insanity. Parents and teachers should remember, too, that the proneness to imitate physical suffering is particularly strong in the young. Those of keen sensibilities and vivid conceptions ought, for the same reasons, to beware of participating in great moral, political, or even religious movements of an agitating character. Even they who know their danger may become powerless before the irresistible influence which, by sympathy, is exerted upon them. Nor is this great law of sympathy controlled by the moral complexion of the thoughts and emotions which are chiefly involved. One may become fanatical more readily in a good than in a bad cause; and religious excitement, a due degree and kind of which is, as Dr. Ray, and all other sound judges aver, most salutary to the mind, is, in its excess, a concomitant of more cases of insanity than any other. It is the strength, intensity, and persistence of a mental impression, either emotional or intellectual, that constitutes the danger, or produces the evil. Affections of a pleasing kind are, it is true, as a rule, the least injurious.

The importance of habit; the necessity to mental health of regular occupation; the utility of occasional amusement, and the great advantage of a definite and appropriate aim in life, are the topics further considered in Dr. Ray's third chapter. He concludes it with a practical remark upon the defect most obvious in our national mind and temperament.

"What the American brain wants, above all things else, is, as they say of machinery, a steadier movement. The quality of character in which we are peculiarly deficient is that moderation which springs, not from indolence or

apathy, but well-grounded self-confidence and unwavering self-possession." (p. 223.)

In regard to mental hygiene as affected by the practices of the times, Dr. Ray applies the principles already so well set forth in his book. Insanity, he believes, is increasing, although few reliable statistics in regard to it exist. It is probable that the rate of increase appears greater than it is, on account of the greater fulness of returns now than formerly, in proportion to the number of cases. The same consideration applies to the comparison between savage and civilized life, as to the frequency of insanity in each. Savages mostly neglect or abuse their insane, so that they do not live long or become much known. Our author's expression is perhaps too strong, as to the brain of the savage partaking of the "common exemption from disease shared by his stomach, heart, and lungs." (p. 229.) No such exemption exists. Army surgeons stationed among the N. American Indians record a large amount of disease among them, and a mortality greater than among the whites or domesticated negroes.<sup>1</sup> Dr. Pickering describes the appearance of a considerable amount of disease among the South Sea Islanders. Yet there seems to be no room for doubt, that the mental excitation of civilized life, with its depressing influence, in many ways, upon the general bodily vigour, must produce a tendency to insanity greater than is found in a barbarous or semi-barbarous condition. With Dr. Take, we believe that this is not to be supposed or expected of a *normal* or complete civilization; such, if possible at all, would be much more truly a state of nature than that of the Feejee or the Esquimaux.

Multiplicity of books, especially of "sensation" literature, stimulates unduly the modern mind; and Dr. Ray considers that newspapers do the same thing, even by the facts they convey.

"There is not a single phasis of human passion, not a single combination of its various elements, not a single development of its slumbering activities, not a single abnormal deviation from its ordinary channels, not a single manifestation of its effects on actual life, which is not displayed by the public press in the strongest colours that an ambitious rhetoric can give it. And, no small proportion of the impressions thus thrust upon the reader's attention, leave a positively unhealthy impression; and when we consider that, besides the multitudes, who, in addition to other reading, never pass a day without looking over a newspaper, there is a scarcely smaller number who read nothing else, we may get some faint idea of the magnitude of this result." "This kind of mental activity becomes a prolific source of cerebral disorder, not of the more palpable forms, such as inflammation or softening, but of a degree of irritability or abnormal erythism which often terminates in overt disease. One operation of the principle in question is clearly exemplified in the prevalence of suicide." (pp. 235-8.)

Is the family newspaper really so dangerous? Dr. Ray admits that persons of a "certain culture and moral temper" do not find it so. It may then be, that the evil consists in the deficiency of such moral culture altogether. We have too much faith in *facts*, in truth of any kind, to suppose that acquaintance with the actual daily history of the world can do harm to a mind not already diseased.

It is otherwise, no doubt, with much of the literature which our author condemns. Works of imagination, not masterly and manly like those of

<sup>1</sup> Statist. Report, &c., of U. S. Army, 1839 to 1855; special reports of Assist. Surgeons Head, Day, Barnes, &c. "They mostly die in infancy." "Typhoid pneumonia, phthisis, &c., are very common and fatal."

Shakspeare and Scott, but effeminate or prurient, beyond all question, poison the brains of thousands as injuriously as haschish or opium. The young, too, are the most frequent victims of this morbid taste.

The intensity of competition in this country in all pursuits, in quest of wealth, power, or renown, has already been alluded to as often injurious to the mental balance. In no country in the world is trade pursued so much in the spirit of adventure. The mercantile spirit of the times leads to a fitful and feverish activity of mind more destructive to its health than a far greater amount of steady exertion.

Allied to this spirit, as Dr. Ray remarks, is that of audacious speculative inquiry; the longing for the strange and marvellous; the restless discontent with all that had appeared settled, either in nature or philosophy. Hence arise errors and phantasies, which amuse some, excite others, and in some light up actual mental disease. The frequent concentration of the whole mind upon one idea, and the proneness to exaggeration in all intellectual productions and manifestations of the times, work in the same way, and tend to the same ends. Books, papers, lectures, even the pulpit, often minister to the general and insatiable craving for excitement. We cannot believe this to be peculiar altogether to our society. If literature be a test, the *intense* element abounds more in the writings of Tennyson, Browning, and Alexander Smith, of Lamartine, Victor Hugo, and Rénan, than in those of Longfellow, Bryant, Irving, Prescott, and Motley. Still, its excess is bad, wherever found; æsthetically vicious, and intellectually dangerous.

Another serious evil is described by Dr. Ray as belonging to the popular views and practices in regard to education. Home training is less wholesome and less prolonged than formerly. Moral discipline and elevating culture are too much neglected. Intellectual forcing appears to be the only object of most educators, and the great demand of many parents. Juvenile books as they now exist are denounced by our author, it appears to us almost too sweepingly.

"Nothing seems to be too profound, nothing too simple, nothing too high, nothing too ignoble, to be brought within the compass of this class of books. They have come upon the land like the locusts of Egypt." "By having the results of science and art, the lessons of morality and religion, ever presented in the garb of a story, with lively incidents and an agreeable ending, vice punished and virtue rewarded, according to the approved methods of romance, the youth imbibes false ideas of the stern realities of life, and finds the common and unadulterated truth too insipid to awaken any interest in his mind." "Many a man, I imagine, who finds his children arrived at their twelfth or thirteenth year with no other intellectual furnishing than such books supply, bethinks himself, all at once, that long before that age he loved to resort to his father's library, and hang with delight over the pages of some unwieldy history or book of voyages; or, in the absence of more attractive material, plunge into the mazes of controversial divinity. The lads of this generation would stand aghast at sight of the huge folios and formidable octavos over which their fathers spent many a Saturday afternoon, laying up treasures of knowledge as enduring as life." (pp. 267-8.)

Many must doubt the correctness of the author's retrospective choice, if he would prefer, for youth under twelve, Paley to Parley, or Edwards on the Will to the Rollo voyages. The one extreme is at least as wrong as the other. Would he close all the *kindergartens*, and forbid the object-lessons? The Pestalozzian principle may be, as Herbert Spencer has ob-

served,<sup>1</sup> carried out in a very un-Pestalozzian manner, so as to fail in consequence. But the principle is nevertheless sound—that education must conform to the natural process of mental evolution, must be progressive, alike in its order, methods, and materials; and that it is most successful and healthful where its processes are grateful.

The last topic considered in the book before us is, mental hygiene as affected by tendencies to disease. Those who inherit proclivity to mental disorder are advised that, by duly ordering their life with reference to this defect, the worst of calamities may often be averted. No universal rule of action or culture can be prescribed, but each must endeavour to comprehend his own case, and attend to his own dangers. Among the precepts of general application in such instances, one given by Dr. Ray is, to observe great caution in the use of stimulants. For the general reader such advice is certainly more safe than the professional teaching of Dr. Forbes Winslow,<sup>2</sup> that, in “certain morbid conditions of cerebral health, of psychical debility, generally associated with depressed nerve and vital force, a stimulating plan of treatment, generous diet and tonics, are valuable remedies.” This is a truth best confided to, and applied by, careful medical practitioners.

Of spirituous liquors and tobacco, Dr. Ray says :—

“Though not among the most potent agencies in creating insanity where no hereditary predisposition exists, yet few are more efficient than the former in developing the latent germs of the disease. This caution is peculiarly necessary in view of the very common use of these articles at the present time, so common as to be regarded by a large portion of the race as one of the normal habits of modern life.” (p. 292.)

Incipient insanity requires the greatest judgment for its proper management, on the part of all who surround the patient. Our author's special experience qualifies him to give clear and excellent instruction upon it; and he terminates his work with the enunciation and support of the principle upon which all psychopathists are agreed—that the sooner the insane person is removed from the then unfavourable influence of his accustomed home and haunts, and consigned to the sanative appliances, mental and physical, of a well-ordered hospital, the better will be his prospect of early recovery. He adds a plea, on similar ground, for willingness on the part of the convalescent lunatic and his friends, to postpone his removal and return to ordinary excitements, until his restoration to health shall have been amply established and confirmed.

In closing Dr. Ray's volume we desire again to express the unqualified opinion, that he has in it assumed an important task, and has performed it well. He has written a good book, which all physicians, whose responsibilities often involve the minds as well as bodies of their patients, will find it to their advantage to read. Seldom, in a volume of so few pages, do we find so much to ponder and approve, and so little to call in question upon any of its topics.

H. H.

<sup>1</sup> On Education, Intellectual, Moral, and Physical, p. 119.

<sup>2</sup> On Obscure Diseases of the Brain, &c., Am. ed., p. 538.

- ART. XVII.—1. *De l'Ataxie Locomotrice Progressive*. Par le Dr. DUCHENNE (de Boulogne). (*Arch. Gén. de Médecine*, Dec. 1858; Jan., Fev., and Avril, 1859.)  
*On Progressive Locomotor Ataxia*. By Dr. DUCHENNE, of Boulogne.
2. *Études Cliniques et Histologiques sur l'Ataxie Locomotrice Progressive*. Par HIP. BOURDON, &c. (*Ibid.*, Nov. 1861; Avril, 1862.)  
*Clinical and Historical Researches on Progressive Locomotor Ataxia*. By Dr. BOURDON.
3. *Erfolge der Behandlung der progressiven spinal Paralyse durch Silbersalpeter*. Von C. A. WUNDERLICH. (*Archiv der Heilkunde*, Apr. 1861.)  
*Results of the Treatment of Progressive Spinal Paralysis by Nitrate of Silver*. By Prof. WUNDERLICH.
4. *Weitere Erfahrungen, &c.* (*Ib.*, Dec. 1862.)  
*Further Results of Experience in the Treatment, &c.* By the same.
5. *Ueber degenerative Atrophie der spinalen Hinterstränge*. Von Prof. Dr. N. FRIEDREICH, in Heidelberg. (*Virchow's Archiv*, xxvi., 391, 433, and xxvii., 1.)  
*On Degenerative Atrophy of the Posterior Columns of the Spinal Cord*. By Prof. FRIEDREICH.
6. *De l'Ataxie Locomotrice*. Par GEORGE DUJARDIN-BEAUMETZ. (Paris, 1862, 8vo. pp. 73.)  
*On Locomotor Ataxia*. By Dr. DUJARDIN-BEAUMETZ.

THE intimate relations of physiology and pathology as the scientific groundwork of practical medicine have nowhere been more beautifully illustrated than in the advancement which has been made, of late years, in our knowledge of diseases of the nervous centres, and especially of the spinal cord. In spite of the discoveries of Sir Charles Bell, the interpretation of the phenomena presented by diseases of this organ, was neither clear in itself nor fruitful of practical results in diagnosis and therapeutics. The treatises on practical medicine did not successfully attempt to establish sharply defined symptomatic species, nor even endeavour to found a classification of those which they admitted upon determinate anatomical lesions. In describing the latter, pathologists seemed to ignore the multiple functions which had been proved by experiment to belong to the spinal marrow, and the lesions of this organ were recorded with little attention to the independent offices of its several parts. This is the more singular when it is considered that numerous cases, long ago placed on record, which, as will be shown in the sequel, abundantly demonstrated the co-existence of at least one special disease of the spinal marrow and the peculiar alteration of this organ which constitutes its anatomical character. To experiments on living animals, against which an unreasoning susceptibility every now and then pricks the knight-errants of humanity to run a muck, the world owes this most important advancement of medical knowledge. Fortunately for society, as well as for the progress of the healing art, the chief pioneer in these researches has been guided and restrained within just limits by his



acquaintance with disease and his office as a physician. At every step in his experiments, Dr. Brown-Séquard has paused to compare the phenomena created by experiment with those evoked by disease, and reading the one in the light of the other, has reached results which, whatever may be the ultimate formula in which they shall be expressed, are sure even now to embody more and more exact truth than any arrived at by a single pathway of discovery.

To take a review of the several forms of paralysis in which the various functions of the spinal cord are deranged, impaired, or lost, would require a volume instead of the few pages to which we are at present restricted. But it may be remarked, in general, that while very much remains to be done, a great deal more has been already accomplished than is commonly recognized in systematic treatises towards determining the multiple causation of paralysis, and in proving that in very many cases the spinal axis reflects the operation of influences derived from remote organs, while itself remains essentially sound. This has been amply demonstrated by the eminent teacher we have named, in a course of lectures delivered in 1859,<sup>1</sup> and by E. Gubler, in a series of articles published in 1860-61.<sup>2</sup> All of the other forms of paralysis have been within quite a recent epoch more narrowly examined than ever before, including that of the insane, of drunkards, paralysis from various poisons, from muscular atrophy, &c., as well as those resulting from acute diseases of the spinal cord and its membranes. Leaving these out of consideration, we propose to confine our attention to a review of the present state of knowledge regarding *locomotor ataxia*, as it has been called in reference to its peculiar symptoms, or *tabes dorsalis*, as it has been more significantly termed in view of its anatomical characters. A somewhat more expressive title borne by the same affection is *myelo-phthisis*.

This disease has been defined by Duchenne as "a progressive loss of the co-ordination of muscular movements, and apparent paralysis, although the muscular power remains unimpaired;"<sup>3</sup> and this definition is accepted as his own by Trousseau.<sup>4</sup> It would have been in accordance with the results of observation to add that the disease first manifests itself in the lower extremities. This is strikingly shown in the interesting group of cases observed by Dr. N. Friedreich, and in those collected by him in the historical notice which he has furnished of the observations of other physicians.<sup>5</sup> The earliest symptom of the affection consists of a sense of weakness and weariness in both legs together, or at first in one alone. It would appear from a case related by Lecoq,<sup>6</sup> that the characteristic peculiarity of movement may, for a long time, or even permanently, be confined to a single leg. His patient could readily walk backwards, or go up and down stairs, but in ordinary progression the left leg was quite uncertain in its movements. After a long time, in all cases, it may sometimes be after several years, and when the patient is no longer able to maintain an erect position a similar defect of co-ordinating power may involve the upper limbs. In one of Friedreich's cases the leg and arm of the same side were simultaneously attacked, while a sense of weakness and weariness affected the back and loins. In general, when one leg only is at first involved, the arm of

<sup>1</sup> London Lancet, April to Sept. 1860.

<sup>2</sup> Archives Générales, 1860-61.

<sup>3</sup> Arch. Gén., Dec. 1858, p. 641.

<sup>4</sup> Abeille Méd., Avr. 1861, p. 126.

<sup>5</sup> Virchow's Archiv, vols. xxvi. and xxvii.

<sup>6</sup> Arch. Gén., Jan. 1861, p. 693.

the same side becomes involved before the leg of the opposite side. In the early stages of the disease the gait is only unsteady like that of a person slightly intoxicated; in going up stairs the patient has a peculiar swinging movement, and even in the standing posture there is a peculiar vacillating or balancing motion of the body. Bourdon attempts to draw a distinction between the gait characteristic of the early stages of this disease and that which is exhibited in some cases of disease of the cerebellum, by comparing the latter to the tottering and reeling movements of a drunken man, while of the former he says the patients walk with difficulty, because the will no longer directs their movements.<sup>1</sup> This distinction does not appear to be a real one. In both cases the will is ineffectual to regulate the muscular movements concerned in walking. A characteristic difference between the gait of true paraplegia and that of locomotor ataxia consists in this, that in the former the limb is thrown forward by an energetic movement of the trunk, when it oscillates for a moment, and then falls heavily to the ground; in the latter, on the other hand, the co-ordinated movements of the lower extremities are suddenly interrupted, or are so irregular as to seem to be no longer under the control of the will.<sup>2</sup> It is, moreover, to be remarked that after years' duration of the disease, and even when the patient has long been confined to bed, or is quite unable to stand erect, he is still able to perform any simple movement of the limbs, as flexion, extension, &c., and that with considerable force. M. Trousseau relates, *apropos* of this symptom, that one of his medical friends begged him to visit a patient who, he said, was affected with a very odd kind of paraplegia. It was an old man of fourscore, who appeared to be in the best of health, except that for a year preceding he had suffered from paralysis of the bladder, and was unable to move from his chair. One day, the physician desiring to estimate the loss of muscular power in his patient's leg, requested the latter to extend the limb as strongly as possible. The experimenter, not expecting any exhibition of muscular power in the leg which he was holding flexed, was much astonished at finding himself thrown violently to the opposite side of the room. M. Trousseau himself was unable to flex or extend the limbs against the patient's will, and the invalid was able, without bending, to carry M. T. on his shoulders. It was evident, says M. T., that the case was one of muscular ataxia, and not of paralysis. It must not be supposed, however, that the muscular force is so perfectly preserved in every case. It is sometimes materially impaired, but never so completely lost as in true spinal or cerebral paralysis.

The real character of the disease is exhibited when the patient endeavours to execute any combined movement. When the upper extremities are affected, if he attempts to grasp anything, many abortive efforts are made for this purpose. A glass or spoon is not steadily directed to the mouth; and threading a needle or buttoning the clothes becomes a very difficult task. By these symptoms one cannot fail to be reminded of chorea. Indeed, the analogy of the motor disturbances in the two affections deserves a closer investigation. In chorea, spasm is superadded to motor ataxia.

Muscular spasm is rarely noticed in this affection, a circumstance which distinguishes it strikingly from most other diseases, whether acute or chronic, of the spinal marrow. Sooner or later, according to Friedreich, the power of vocal articulation becomes impaired, but in general only after the upper

<sup>1</sup> Arch. Gén., Avr. 1862, p. 387.

<sup>2</sup> Dujardin-Beaumetz, De l'Ataxie Locomotrice, Paris, 1862.

extremities have for some time been affected. It gradually grows indistinct and stammering, so that the patient is with difficulty understood. In one case only noted by this author was there complete paralysis of the tongue, and that only for short periods; but in all, with this single exception, the patient could move the tongue in any desired direction. When the organ was thrust out it could not be kept still, but was affected with twitching and trembling. In one case a peculiar incoördination of the laryngeal muscles seems to have occasioned a spasmodic cough with whistling inspiration and dyspnoea.<sup>1</sup> Double vision, strabismus, falling of the upper eyelid, amaurosis, and a peculiar oscillatory motion of the eyeball, have been occasionally observed. The muscles of mastication and deglutition appear never to be affected, and those which control the rectum and the bladder are rarely impaired.

Some discordance is to be observed between the accounts given by different reporters concerning the sensibility of the skin. Friedrich, whose observations bear the stamp of accuracy, declares positively that in all of his cases cutaneous sensibility was perfect, or but very slightly diminished. The lightest pressure upon the surface of the body, as well as strong impressions, such as punctures with a needle, were in all cases perfectly perceived, and the place where they were made correctly indicated by the patients even when their eyes were closed. A similar result followed the use of the test by a pair of compasses opened to a greater or less degree. On the other hand, Dujardin-Beaumetz maintains that the sense of pain is sometimes lost, although he admits that it is less frequently so than the sense of touch, and that it may even be morbidly increased.

This derangement of sensibility is to be distinguished from that of the muscular sense, which is pretty generally admitted to be materially impaired in the greater number of cases; indeed this symptom constitutes one of the most striking phenomena in certain cases of the disease under consideration. It consists of an erroneous judgment of the degree of resistance opposed to muscular efforts. The patient, especially if unaided by his sight, no longer correctly appreciates the force or the purpose of his movements. They either exceed or fall short of their just degree, or are imperfectly harmonized, so that a sort of tremulousness or vacillation characterizes even the most simple movements, which, indeed, are often executed after a series of oscillatory efforts. But, according to Bourdon, as soon as the eye estimates the extent of the required movements, the muscles are competent to execute them.<sup>2</sup> This writer, however, maintains that the disordered movements just described are due to what he designates as "the loss of the sense of muscular activity," while in locomotor ataxia, properly so called, the disorder of muscular movements continues, in great part, at least, even when the sight intervenes to control them. In every attempt at walking, he says, the limbs are thrown forcibly in all directions, and often progression and even standing are impossible. The mere circumstance that the co-operation of vision is sometimes necessary to render muscular movements efficient, does not appear to be a sufficient ground for regarding the cases in which this circumstance obtains as belonging to a separate disease, any more than the degree of muscular ataxia itself. It is true that muscular ataxia does not necessarily imply imperfection of the muscular sense; but the latter has very seldom, if ever, been observed without the former. Future anatomical investigations may perhaps show that the two

<sup>1</sup> Dujardin-Beaumetz, *op. cit.*

<sup>2</sup> Arch. Gén., Apr. 1862, p. 388.

functional disorders in question are each dependent upon special lesions. Meanwhile it is certain that the records of cases do not always clearly distinguish between the two, or even recognize the existence of the separate functions which present them. The one (ataxia), it should be recollected, relates to the performance of combined movements, as standing, directing the foot or the hand to a given point, &c. ; the other (loss of muscular sense) relates to the sensations by which the mind judges of the position of the limb, the nature and degree of obstacles opposed to its movements, &c.

Among the subordinate symptoms remaining to be noticed may be mentioned a sense of giddiness which has sometimes been observed in the early and sometimes in the advanced stages of the disease, and which occurred not only in the erect but sometimes in the horizontal posture also. Friedreich did not observe any disorder of the mind or of the special senses. On the other hand, Duchenne affirms that some disorder of vision was met with in seventeen out of twenty cases ; and Trousseau speaks of the frequent occurrence of strabismus and double or feeble vision in the early periods of the disease. There appears to be little or no diminution of muscular contractility under electro-magnetic stimulus at any stage ; but in cases of many years' duration the electro-muscular sensibility has been found greatly diminished. For example, although the current excited powerful contractions in the legs they caused a relatively slight sensation, and the same current passed through the arms induced severe pain as well as muscular action. The sexual organs in the female are said to undergo very slight impairment of function, the catamenia remaining regular, and the power of conception continuing. In the male, on the contrary, if there appear to be insufficient grounds for the belief formerly current that *tabes dorsalis* is one of the direct consequences of excessive venery, it is at least certain that when the disease is established the virile powers rapidly decline and ultimately become extinct. The functions of the digestive and urinary organs present no special symptoms.

The anatomical characters of *myelo-phthisis*—the lesion which produces chronic and progressive locomotor ataxia—may be considered as established. Duchenne, after describing the symptoms of numerous cases of the disease, avowed his ignorance of the anatomical conditions producing it ; he even states that in a case of it which proved fatal by intercurrent disease no lesion of the brain or spinal cord was discoverable. Such a statement cannot now be accepted unless it is supported by the results of a microscopical examination made by an expert. On the other hand, M. Bourdon correctly presents the following as the result of post-mortem examination in thirteen cases observed by himself and various other physicians :—

"The posterior columns of the spinal cord and sometimes the cineritious substance also, had undergone degeneration, were of a grayish-yellow colour and semi-transparent ; the posterior roots of the spinal nerves were also atrophied ; sometimes the optic nerve, and in one case the tubercula quadrigemina had become altered."

Every new contribution to the subject proves this description to be essentially correct, and the whole goes to confirm the proposition announced in 1858 by Dr. Brown-Séquard, and contained in the volume of his lectures published in 1860 :—

<sup>1</sup> Arch. Gén., Avr. 1862, p. 405.

"That in cases of alterations limited to the posterior columns, but occupying all their length and thickness, or only the whole of the lumbar swelling, there is an impossibility of standing or walking, depending upon the loss of the reflex action of the limbs; but that in bed, the patients in such cases can move their lower limbs pretty freely."

The reader will, however, better appreciate the nature of the anatomical lesion in question after examining the following summary of the report published by Friedreich relative to three cases which died of an intercurrent disease (typhoid fever) while under his care. In all of them the ataxia had been of many years' duration.

The external surface of the spinal dura mater showed no visible alteration; but in all three cases the finger could detect some fluctuation in the lumbar region, and, on opening the membranes in this part, a considerable portion of clear transparent liquid escaped, while above and below the dura mater lay in immediate contact with the pia mater. The latter had a milky and turbid aspect the entire length of the posterior columns, was of unusual firmness, with difficulty separable from the substance of the cord, and upon its external face was adherent to the inner surface of the dura mater by numerous white bands and threads. The ligamentum denticulatum in its whole length was thickened and of a milky whiteness. The alteration of the pia mater extended somewhat, but in a less degree, over the lateral columns. These lesions sufficiently demonstrate the existence of a chronic spinal meningitis.

The most striking and essential changes were in the substance of the spinal marrow. Even a superficial inspection revealed, in all the cases, a gutter-like depression, of greater or less depth, along the posterior surface of the cord. It was deepest in the lumbar and dorsal regions. On making transverse sections of the cord it was evident that this depression corresponded to the atrophied posterior columns which, even to the naked eye, had a grayish and translucent aspect in striking contrast with the normal appearance of the lateral columns. In two of the cases this altered portion was firmer and tougher than the normal tissue; in the third its consistence was but slightly abnormal. In all three cases the whole of the lumbar portion of the cord, with the exception already stated, was less firm than natural, which, probably, may be attributed to its post-mortem maceration in the effused serum.

These lesions agree with the symptoms in pointing out the lumbar portion of the spinal marrow as the part first affected, and as showing that the disease proceeds thence to the upper portions of the cord.

In two cases the anatomical alteration had slightly invaded the lateral columns in the lumbar region.

In all the natural line of separation between the opposite halves of the organ had almost totally disappeared so far as the posterior columns were concerned; but the cineritious matter offered no evidence of change when examined with the naked eye, or with the microscope. The pons, the crus, and the cerebellum were free from disease.

The microscope showed the same degeneration wherever the grayish aspect of the tissue existed. In place of nerve fibres were seen delicate empty tubes, imbedded in a granular substance, consisting of cells containing several nuclei; and in proportion to the amount of this substance was the loss of the normal nervous fibres. In these no trace whatever of fatty degeneration could be detected. In the lumbar region the destruc-

tive process was so complete that only after searching a long time could any rudiment of a nerve fibre, with a double contour, be perceived. Corpora amylacea were met with in the midst of the elements already mentioned. The microscope revealed no change of structure in the anterior or in the lateral columns, except at some points of their connection with the posterior columns.

The posterior roots of the spinal nerves were atrophied, being thinner, flatter, and harder than natural, but the anterior were unchanged. The atrophy of the posterior roots was most conspicuous in the lumbar region. Their proper nervous constituents, in a great measure, had disappeared, yet the continuity of all the fibres was not entirely destroyed. The sciatic nerves were also in some degree deficient in nervous matter.

Hence, anatomically, the disease is "*a chronic inflammatory process, resulting in the atrophy of the nerve elements, and which, being confined to the posterior column of the spinal cord, begins in its lumbar region and gradually extends thence both upwards and downwards. With this alteration is associated a spinal meningitis affecting the posterior face of the cord, and proportioned in its degree to that of the alteration of the cord itself.*"

It may be interesting to know that in a recent case of the disease, which proved fatal with phthisis, under the care of M. Trousseau, the same lesions were found by the skilful anatomist, M. Sappey. The lumbar portion of the cord was slightly diminished in volume and of a grayish tint within. The posterior roots of the nerves were considerably atrophied; they had lost from two-thirds to three-fourths of their normal volume, were flattened, and no longer white, but reddish-gray. Some of the nerve tubes of these roots retained their integrity; of the rest, the greater number had lost a portion of their medullary contents, and, in some points, were contracted, and a little further on relatively enlarged. In very many the medulla had completely disappeared at different points, and some of the nerve tubes were quite empty.<sup>1</sup> It will be observed that the lesions in this affection present as uniform a character as those which are acknowledged to be the anatomical character of any disease whatever. They are almost always confined to the lumbar portion of the cord and its dependent nervous roots, or present sufficient evidences in their nature and degree to prove that they began in that region. Instead of extending into the substance of this complex organ, as it does when traumatic in its origin, the softening extends along the parts just indicated, thereby proving their essential organic and functional independence as distinctly as when effects, analogous to the phenomena of the disease, are produced by the scalpel of the physiological experimenter.

The causes of *tabes dorsalis* are very obscure. There would appear to be some ground for the belief that hereditary tendency may have a share in its production. At least, according to M. Trousseau, although it cannot be shown that this special disease is transmitted from one generation to another, there is proof, at least, that it is apt to occur in families which manifest a proclivity to nervous affections. A stronger proof is furnished by the cases of Dr. Friedreich, all six of which took place in members of two families. Sex does not appear to exert a decided influence in its causation. Some observers have met with more cases among males and others

<sup>1</sup> Arch. Gén., Avril, 1863, p. 490.

among females. It may be remarked that when the affection was more generally than now ascribed to sexual excesses, the male sex was alleged to furnish the most numerous examples of it. But a comparison of recorded cases does not substantiate this view of its causation, and consequently the inference cannot be admitted. Friedreich lays much stress upon the fact that in all of his cases the first symptoms of the disease manifested themselves about the epoch of the maturity of the sexual development, *i. e.*, between the fifteenth and the eighteenth year. Canstatt gives the age between the eighteenth and the thirtieth year as that in which it most frequently commences; and Dujardin-Beaumetz states that "it almost always begins between the thirty-fifth and the fortieth year." These discordant conclusions prove that no general law governs the matter. The same remark is applicable to the duration of the disease. It is quite indeterminate, but usually very long. Of Friedreich's patients three died of typhoid fever in the twelfth, fifteenth, and sixteenth years of the disease respectively; while in three who were still living the symptoms had lasted for nine, eighteen, and twenty years.

Dr. Brown-Séquard, if correctly reported, regards muscular ataxy as only a symptom incident to various lesions of the brain and spinal marrow.<sup>1</sup> The passage we have elsewhere quoted from his lectures would, on the contrary, favour the conclusion we have adopted that degeneration of the posterior columns of the spinal cord is essentially connected with the peculiar disorder of the muscles now denominated ataxia. Wunderlich is not willing to accept the individuality of the disease and its anatomical expression in the lesions of the spinal cord, maintaining it to be questionable whether these lesions instead of being the original cause of the symptoms are not in reality results of the long functional inactivity of the organ. But, it may well be asked, what, then, is the cause of the degeneration affecting the spinal marrow in cases where this is the sole abnormal point of the whole organism? Certainly, the palpable and visible lesion must be preceded by an invisible and inappreciable organic change, which, if anything, has occasioned the peculiar and progressive loss of the equilibrating power in the lower limbs; and it is more logical to suppose this loss of power to depend upon a central change which sooner or later becomes atrophic degeneration, than to assume a causeless loss of function in an organ as the source of its decay. While leaving out of view for the present, then, the degrees of the lesion in question, we feel authorized by the whole clinical and post-mortem history of muscular ataxia, to regard it as an independent affection, whose phenomena with their analogies and differences it is important to learn.

Now it is very certain that derangement of the motor power of the lower extremities and of other parts cannot be the initial phenomenon of the disease in the great majority of cases; it is rather an evidence of its maturity. Several symptoms have been regarded as characteristic of its early stage. Duchenne has called particular attention to loss of sight and strabismus affecting one eye, and usually temporary in their duration. But others have witnessed nothing of the kind. Perhaps they were less minute in their examination; but this is not to be presumed, nor is it probable that such striking symptoms as those alluded to, would escape the notice even of less practised and minute observers than Friedreich, and Wunderlich, and

<sup>1</sup> Med. Times and Gaz., March, 1863, p. 248 and p. 274.

Bourdon, and the others who have reported cases of this disease. Nor is it in accordance with general observation that darting pains in the lower extremities precede their loss of coördinating power as Duchenne declares. This symptom is undoubtedly met with in a certain proportion of instances (we have, ourselves, observed it most distressingly developed in a well marked case of the disease), but the records prove that it is oftener absent than present. There remains, then, only the peculiarity of the disorder of motility upon which a diagnosis of the affection can be based; and, as it is probable that this may have been of long duration before its increase has become sufficient to attract attention, the conditions attending its primary development may have remained undiscovered. Once, however, noticed, it is probably taken for a paraplegia, *i. e.*, for a loss of *motor power* in the lower limbs, and hence its distinction from true paraplegia should be as clearly as possible ascertained. It is unnecessary to repeat in this place what has been more than once stated, that the pathognomonic sign of *tabes dorsalis* is an imperfect power of coördination of the muscles of the lower limbs, and exceptionally of other parts. Such is the typical expression of the disease. But it will readily be understood that the lesion of the posterior columns, with or without that of their corresponding nervous roots, and which gives rise to the symptom in question, may not be the sole alteration of the spinal cord. It may be complicated with lesions of the gray matter, and of the lateral, or of the anterior columns; and thus may be occasioned various degrees of hyperæsthesia, anæsthesia, and true paralysis. Dr. Brown-Séquard has demonstrated these propositions experimentally and clinically.<sup>1</sup> Thus it is that his statement referred to in the last paragraph finds its justification. But it does not follow that there is not a disease originating anatomically in the posterior columns of the spinal cord, running its course chiefly in them, and occasioning the symptoms which we have endeavoured to describe in this article. But we shall return to this subject when speaking of the treatment of the disease.

It will not be without interest or utility to consider the most striking differences between the symptoms of other spinal affections and those of *tabes dorsalis*. Hysterical paralysis is undoubtedly the disorder which most closely resembles it, presenting as it generally does a diminution of the muscular sense, while the power of muscular movement may be but slightly impaired. Nor, when the loss of power is constant in the same muscles, does it appear easy to ascertain the real nature of the case except by employing, as Duchenne advises, cutaneous and muscular faradisation, which, he asserts, will generally cure the one, but not the other affection. In general paralysis of the insane, there is a loss of power in all the muscles when the disease is fully developed, and during the earlier stage a general tremulousness, but the co-ordinating faculty is not impaired. M. Duchenne describes as general spinal paralysis the gradual failure and final loss of the power of muscular movement, with the loss or diminution from the first of the susceptibility of the paralyzed muscles to the electric stimulus, and the ultimate fatty degeneration of these muscles. These examples may serve to indicate the most important points of differential diagnosis in the study of *tabes dorsalis*; yet it is, after all, sufficient to bear in mind the distinctive sign of the disease given above, the impairment of

<sup>1</sup> Lectures, Philadelphia, 1860, p. 136.



muscular co-ordination, and to exclude all grounds of hysterical paralysis, to render the diagnosis as nearly certain as possible.

There would be little advantage in discussing the value of the long list of remedies which have been used in the treatment of tabes dorsalis. Revulsives and derivatives, general and local baths, electricity, ergot and iron, nux vomica, and cod-liver oil have all been tried perseveringly, and the result has only served to confirm the melancholy conclusion of Romberg :—

“There is no prospect of recovery for patients of this class; the fatal issue is unavoidable; the only consolation that can be offered to those fond of existence is the long continuance of the disease. If, in any case, the busy activity of the physician increases the sufferings of the patient, it is in tabes dorsalis.”

Friedreich, also, concludes his short summary of this part of the subject by saying :—

“It is indeed discouraging to observe how, in spite of active remedies, the symptoms gradually but visibly grow worse, while an evident suspension of its rate of progress may be observed when all medicines are discarded and the patient is confined entirely to dietetic measures.”

Almost the only persons who have furnished a less discouraging estimate of the value of remedies in this disease are Dr. B. A. Wunderlich, Professor in the University of Leipsic, and those who in imitation of his example have employed nitrate of silver in its treatment. His first publication was made respecting it in 1861,<sup>2</sup> and in this he maintains that no diagnostician in the world is competent to declare beforehand what precise lesion will be found after death in any case of “progressive spinal paralysis,” nor in what degree of disorganization, if any, the spinal marrow may be at a particular stage of the symptoms, nor what are the limits of nature’s power in restoring the injured structure of the affected organ.

“My cases,” he remarks, “appear to me most distinctly to prove that one may be affected for years with progressive spinal paralysis, and already have sunk into the most deplorable condition, without its necessarily following that the nervous matter essential to the impaired functions shall be destroyed. We ought, rather, as my cases show, not to abandon too readily the hope that the integrity of the function may be restored.” (p. 197.)

MM. Charcot and Vulpian<sup>3</sup> assume a similar position.

“The gray matter of the cord,” they remark, “is usually intact in these cases; the nerve tubes of the posterior columns are alone altered, and their alteration usually consists in this that the medullary matter has disappeared, while its containing tubes are unimpaired. *It is easy to conceive* that such an alteration is susceptible of repair; that the nervous matter may be reproduced in the tubes, and that these being gradually restored to the normal condition, may regain their functions.”

Undoubtedly, such a process may be imagined, but there is no proof whatever that it actually takes place.

However this may be, the real and important question relates to the curability of tabes dorsalis by nitrate of silver. We have examined with great care the cases published by the authors above named, and by M. Herschell,<sup>4</sup> M. Moreau,<sup>5</sup> M. Beau, and M. Vidal,<sup>6</sup> and we have not been able to

<sup>1</sup> Syd. Soc. ed., ii. 400.

<sup>2</sup> Bull. de Thérap., June, 1862, p. 486.

<sup>3</sup> Ibid., p. 373.

<sup>4</sup> Archiv der Heilkunde, ii., 193.

<sup>5</sup> Bull. de Thérap., Oct. 1862, p. 360.

<sup>6</sup> Ibid., Jan. 1863, p. 82.

accept their conclusions as demonstrated. In nine cases the symptoms undoubtedly comprised the peculiar aberration of the co-ordinated movements which is characteristic of tabes dorsalis, and they were all, more or less, benefited, some of them wonderfully improved, by the administration of nitrate of silver. But there was a peculiarity in them all which appears to have been overlooked by their reporters, and which distinguishes them widely from those cases of the disease which Friedreich, Bourdon, and earlier writers described, and which, as we are convinced, requires them to be placed in a different category from the latter. *They were all of a rheumatic origin.* In the history of each we read: "the patient lived in a cold and damp room," or "he had the perspiration checked," &c. before the first spinal symptoms made their appearance.

The operation of such causes followed by locomotor ataxia would seem to point out a chronic spinal meningitis as the real disease in the cases referred to, rather than a progressive degeneration of the posterior columns of the spinal marrow. The one affection is not in its nature incurable, but there are no adequate reasons for believing that atrophied or softened medullary matter can ever be replaced by sound tissue. It is further to be observed, in relation to the efficacy of the proposed remedy, that it is claimed, even by M. Wunderlich, to have effected a cure in only one case out of five, while in the remainder more or less improvement was manifested. Yet these were all comparatively recent cases, and one, the most successful, was not of more than three months' duration when it came under treatment. MM. Charcot and Vulpian, after alluding to these circumstances, state that the duration of their cases was much longer, extending to several years, and that they had all been sent to the Salpêtrière as incurable after having been treated by various methods in different hospitals. Surely, in such cases it is in the highest degree probable that the medullary lesion, if any, had already reached its full development. How, then, can we explain that the success in their treatment was relatively greater than in the more recent cases? We cannot refrain from doubting the reality of the pathological condition ascribed to them all, for we cannot but feel surprise that a medicine should be found efficacious in direct proportion to the gravity of the condition it is proposed to cure.

Among the cases reported by some of the gentlemen above referred to, are several whose relations to tabes dorsalis may be questioned upon other grounds than those suggested. In the second case of MM. Charcot and Vulpian the previous history of the patient includes sciatica and hysteria, numbness of the hands and feet, violent pains in the ends of the fingers, intense and continued pain in the cervical and dorsal regions, &c. These are anomalous symptoms in the affection to which they are referred. In Herschell's case also, there were excessive pains and intolerable cramps in the feet, followed by complete amaurosis. The ataxia, too, is described "as a sort of tremulousness whenever the patient endeavoured to grasp anything." These, too, are not characteristic. The same may be said of Duguet's case, which was complicated with epilepsy. One less open to criticism is that of Vidal, in which the exciting cause appeared to be prolonged sexual excesses, and the symptoms, generally, were characteristic; but, again, incontinence of the urine and feces is mentioned, and obtuseness of sensibility to the touch, although friction was painful, symptoms not observed when the disease has existed in connection with alterations of the posterior columns of the spinal marrow.

Without entering further into a critical analysis of these cases, which

would, however, be both interesting and profitable, we shall conclude this portion of our subject by quoting a report of M. Trousseau's remarks in a clinical lecture.

"He appeared to be apprehensive that the experimental use of nitrate of silver, which is now carried on so extensively, is the result of a partiality which clinical observation does not justify. Of four persons in his wards labouring under this disease, not a single one had been benefited by the treatment in question. He referred, however, to a private patient in whose case it had done wonderfully well, and who assured him that it had saved his life. But although he had known it to cause improvement, he had not seen it effect a single cure."<sup>1</sup>

The ultimate conclusions of Wunderlich himself are far from affording a sure ground of faith in the proposed remedy, since he confesses that he is acquainted with cases which improved very considerably under the influence of mere rest and simple baths; a circumstance, by the way, which strengthens the conviction that his cases were not examples of *tabes dorsalis* at all. Finally, he confesses that he cannot answer for the permanence of the improvement which appeared to follow the use of nitrate of silver. So that the question of its curative action is still *sub judice*.

It would be to undervalue the results which we have thus briefly analyzed were we to deny the advantage or the propriety of using nitrate of silver in cases presenting the peculiar aberration of muscular motion we have been considering. So long as the practical difficulty of determining the precise nature of the symptom exists in any case, and so long as clear indications for other treatment are wanting, it is not only allowable, but required that a remedy whose virtues are so highly and authoritatively set forth, should be tested to the full extent. In the case of a lady under our care, who lost the co-ordinating power of the lower limbs after a slight but depressing attack of pneumonia, but whose muscular vigour in the same parts remained wholly unimpaired, we made use of the nitrate of silver perseveringly after all other remedies had completely failed. It did not appear to improve the symptoms in the slightest degree, and was at last abandoned because it occasioned gastric oppression and heartburn.

It should be mentioned that the dose of nitrate of silver employed by all the physicians to whom we have referred, was essentially the same, viz., one-fifth of a grain given twice a day at first, and subsequently three times a day. This dose was seldom exceeded, but it was, with short intermissions, continued for many successive weeks. Its good effects appear to have been visible within a few days after its use was commenced.

It will interest reflecting readers to learn by what steps a disease which must always have existed, came at last to be recognized as symptomatic of a definite lesion of the spinal cord. The interest will not be diminished by knowing that so eminent a practitioner and pathologist as Lebert has not described it either in his magnificent work on pathological anatomy, or in his treatise on the practice of medicine. This will seem the more remarkable when it is known that Cruveilhier's Pathological Anatomy, which Lebert's was intended to complete according to the later advances of the science, contains several instances, described at length, of the specific lesions and symptoms of *tabes dorsalis*. The very first case which he relates was of seventeen years' duration, and, although complicated in

<sup>1</sup> Bull. de Thérap., April, 1863, p. 315.

several respects, it presented the peculiarity that the patient could move her limbs freely, but not stand on them. Another case, of which a detailed account is given, bears this descriptive title. "Complete loss of sensation and only partial of motion in the lower limbs. Yellowish-gray transformation of the posterior columns of the spinal cord." She was able to move her limbs freely in bed, but could not stand. The posterior columns in the dorsal lumbar regions were alone affected.<sup>1</sup>

In Baly's translation of J. Müller's *Elements of Physiology*, Part III., published in 1837, we find the following passage at p. 807 :—

"The cord is always charged, as it were, with motor power, and, although in transmitting the nervous fibres from the brain, it acts as a conductor of the oscillations originating in the sensorium commune, still the intensity of the action excited depends not merely on the strength of the will, but also on the amount of motor power accumulated in the cord. Hence this part of the central organs may retain its property of conducting the volition from the brain, but lose the second power by which it determines the strength of our movements; and this is what happens in *tabes dorsalis*, a disease caused only by debauchery, and attended with atrophy of the cord. *Here no muscle of the lower extremities is at first paralyzed; all obey the influence of the will, even in the advanced stages of the disease; the patient can execute every movement, and it is evident that the spinal cord is still unimpaired as a conductor of the oscillation or current originating in the sensorium. But the force of the movements is lost; the patient can neither stand nor walk long at a time; and the power gradually diminishes until the paralysis is complete. This kind of paralysis must be carefully distinguished from others, in which the conducting property of the cord is injured at one point, and the muscles which receive their nerves from below that point are no longer subject to volition, while all other muscles retain their full power of motion.*"

In this extract the distinction is plainly drawn between a loss of what is now called the co-ordinating function of the cord, and its function as a medium for the transmission of motor power.

It is unnecessary to quote at length the description by Romberg of the disease in question, as it is contained in the Sydenham Society's edition of his work on Diseases of the Nervous System. The symptoms which he attributes to *tabes dorsalis* are clearly derived from cases in some of which the lesion was composite; but in describing the post-mortem lesions in certain cases, he says :—

"It is a point of especial interest to observe that the posterior, sensory roots [as they were then exclusively considered] are occasionally alone affected in conjunction with the posterior columns of the spinal cord, the anterior motor columns and nerves retaining their normal structure."

Romberg lays peculiar stress upon the assistance which the patients derive from the sense of sight in regulating their movements; indeed, he denominates it a pathognomonic sign.

In 1840 Dr. Brach, of Cologne, wrote an article with the title: "On a point in the physiology of the nervous system not thoroughly investigated; and a peculiar form of paralysis." After asserting the connection of this form with *tabes dorsalis*, he proceeds as follows :—

"General sensibility is not deficient nor muscular contractility, but the perception of movement. . . . The gait of these persons is peculiar; the incongruous movements which their limbs execute are not met with in ordi-

<sup>1</sup> Anat. Pathol. (1837), livraison xxxii.

nary paralysis. . . . As they have not the perception of their movements they supply its want by the exercise of the other senses, and especially the sight; hence it is difficult or even impossible for them to walk in the dark."<sup>1</sup>

Next in order of time comes the celebrated case of Mr. Hanley, in which, without evident external cause, the loss of motion in the lower limbs gradually, and after several years, became complete without the sensibility being impaired. After death the substance of the cord in its posterior half, and in its entire length, from the pons to its lower end, had turned of a dark brown colour, and was extremely soft and tenacious; all the other parts were healthy.<sup>2</sup> This was one of the first cases to shake confidence in the doctrine that the posterior columns are conductors of sensitive impressions.

In 1843, it may be mentioned, Canstatt<sup>3</sup> gave a complete history of the imperfect paralysis of the lower limbs connected with tabes dorsalis, and attributed the loss of power to *atrophy* of the spinal marrow, and especially of its lower end; but he did not distinguish the columns of the organ which were especially the seat of change.

Of all who earliest described this disease Wunderlich presented its characteristic trait most plainly in his work on Practice of Medicine in 1853-4. He particularly calls attention to the fact that there is not so much a loss of power in the limbs, as a peculiar insecurity and uncertainty in their function. "The patient," he remarks, "even when he has long been unable to take a steady step, can yet stamp vigorously on the floor, and in bed move his limbs freely without the least fatigue."

It is unnecessary to pursue this line of discovery any further, since enough of it has been examined to prove that the affection we have been studying was long ago described by its symptoms and lesions. To interpret them, however, required the light which Dr. Brown-Séquard has thrown upon them from the combined sources of experimental physiology and clinical observation. It is undoubtedly true, as that gentleman asserts, that locomotor ataxia is found in numerous spinal affections; for quite probably there are more instances in which the spinal marrow is injured in several of its divisions, than there are cases in which the lesion is strictly confined to its posterior columns. The latter must, however, be taken as the simplest and typical cases, the standards with which those are to be compared in which locomotor ataxia occurs as one only of an aggregate of symptoms.

A. S.

<sup>1</sup> Quoted by Axenfeld, Arch. Gén., Aug. 1863, p. 214.

<sup>2</sup> Med.-Chir. Trans., xxiii. 80, 1840.

<sup>3</sup> Handbuch der Med. Klinik., 2d ed., iii. 207.

ART. XVIII.—*A Guide to the Qualitative and Quantitative Analysis of the Urine, designed especially for the use of Medical Men.* By Dr. C. NEUBAUER and Dr. J. VOGEL. Fourth Edition, considerably altered and enlarged (with 4 plates and 28 wood-cuts). Translated (from the German) by WILLIAM O. MARKHAM, F.R.P.L. The New Sydenham Society, London, 1863.

*The Semeiology of the Human Urine, especially designed for the purposes of the Physician, containing a description of the signs indicated by the altered conditions of the Urine, and a guide to the investigation of Urinary Calculi and other Urinary Concretions.* By Dr. JULIUS VOGEL. New Sydenham Society, London, 1863.

It cannot be said that there is a want of manuals in the department of urinary pathology. On the contrary, the subject may be regarded as a popular one. Upon the continent of Europe as well as in England there has sprung up a literature devoted to this branch of medicine, which has extended to this country; and the degree to which it has been cultivated is shown by the number of treatises especially written for its illustration. A comparison of these publications is interesting as it affords a standpoint from which can be viewed the degree of interest that has been excited among different nations in the prosecution of inquiry into the nature of disease by an examination of the urinary discharge; the peculiarities which characterize the method of conducting investigations; and the amount of practical utility that can be established by the success that has attended elaborate research.

Although by ancient physicians and by others subsequently who have the highest reputation as observers, the importance of attending to the signs afforded by the secretion of urine had been recognized, and more especially with reference to the critical termination of disease, it may be affirmed that it is only of late years, and since organic chemistry has so rapidly progressed, that the study of this especial department has assumed rational and scientific form. For the first exposition of principles by which the medical practitioner can be guided to the attainment of conclusions calculated to aid him in the treatment of disease, we are indebted to Dr. Prout, to whose labours, as has been stated by one who himself has contributed largely to unfold its truths, "we are indebted for the existence of urinary pathology as a science." The last thirty years have seen not only fixedness given to the principles of Prout, but an extension and application of them, which in the latter days of a long career must have been amply gratifying to that sage physician, whose enthusiasm has been emulated by numerous kindred investigators. Such names as Berzelius, of Sweden, Christison and Bird, of Great Britain, and Becquerel, of France, are at the head of the list of those who have given their time and talents to such inquiries.

It is stated in the introduction to the volume now presented that "heretofore, and up to a late date, the analysis of the urine has been a long and difficult process; indeed almost impracticable in the hands of the physician." But it is not so now. The physician, armed with the simplest and newest methods of analysis, is able in a short time, and at the bedside of the

patient, to test the urine, and thereby to discover in it the presence of abnormal, or to determine the quantity of any of its normal constituents.

The works whose titles are at the head of the present essay are among the latest emanations from the press upon the subject. They may be assumed to represent the German school, and have been deemed of so much value as contributions to urinary science as to induce a translation and publication under the auspices of the New Sydenham Society.

We learn from the introduction to the first treatise that it is the fourth edition, which is a convincing proof of the success it has met with. It is stated that the first edition on the "Analysis of the Urine" was presented to the medical profession in 1854, subsequent to a course of lectures on the subject delivered by Dr. Neubauer to medical men and pharmacutists at Wiesbaden. In 1861 Prof. J. Vogel undertook what now forms the Second Division of the book, the "Semeiology of the Human Urine," and in this form it has been subsequently reprinted.

The *first part* of the work of Dr. Neubauer is devoted to the physical and chemical characters of the healthy urine, to the normal constituents, organic and inorganic; to the abnormal constituents, and to the sediments and accidental ingredients. The *second part* is occupied with the determination of the weight of the organic and inorganic constituents of the urine; while the *third part* presents a practical guide to its qualitative analysis; the characters of the sediments under the microscope; also a practical guide to the quantitative analysis of the urine; and to the approximative valuation of the quantity of its constituents.

As an organic secretion the urine is among the most complex, containing in solution various nitrogenous and saline compounds, the products of transformations of the tissues which no longer subserve nutrition. The most important are the following organic nitrogenous compounds: urea, uric acid, hippuric acid, xanthine and creatinine, with colouring and extractive matters.

*Urea* is regarded as the most important constituent of human urine. It is the chief product of the retrograde metamorphosis of the nitrogenized tissues, and undoubtedly results from their oxidation, although we are quite ignorant of the way in which the oxidation is effected. It is distinctly affirmed that it has not been produced by the action of powerful oxidizing agents on proteine compounds, and although announced as the result of the action of permanganate of potassa upon proteine, the result was not confirmed by the experiments of the authors and Städeler. Urea is stated to be constantly present in the blood, and often in considerable quantities after extirpation of the kidneys and in Bright's disease. The fact of the quantity of urea increasing in the blood after extirpation of the kidneys, tends to show that this substance is formed in the blood and not in the kidneys—that it is, in fact, the product of the oxidation of unserviceable nitrogenized materials—the results of the wear and tear of the tissues, and also of the superfluous nitrogenous matters which have been introduced into the blood. Urea does not exist in the juice of the muscles, but may be artificially obtained from certain bodies, as creatinine, xanthine, hypoxanthine, &c., which are present in this fluid, and hence the assumption that this class of bodies, to which also belongs uric acid, is converted into urea and other compounds by the action of oxygen and the free alkalies and then discharged from the body by the kidneys. The author further states that uric acid, creatine, glycine, allantoin, guanine, theine, gelatine, and superfluous nitrogenous nutritive materials when intro-

duced into the blood are converted into urea and other compounds, and so cause a rapid increase of the quantity of the substance in the urine. It is remarked by Dr. Bird that urea is one of the products of the destructive assimilation of the tissues of the body, and that it constitutes the mode in which the greatest portion of the nitrogenized elements are excreted, it being probable that the nitrogen present as a constituent of the quantity of urea excreted in twenty-four hours represents about  $\frac{1}{2}$  of that taken into the system in food. In this connection it is interesting to refer to a statement made by Mulder that gelatine is capable of resolving itself under proper chemical action into sugar and urea, which is in accordance with the idea of Dr. Prout that urea is derived from gelatinous tissues, while uric acid comes from the albuminous. With respect to theine, the statement has been made that this principle reduced the quantity of urea eliminated, the reverse of which is here assumed.

The existence of urea does not appear to be limited to the urine; it is found in healthy blood, in the amniotic fluid, and in the vitreous and aqueous humours of the eye. Funke and others have found it to be a normal constituent of the sweat. Wurtz likewise found it in the lymph and chyle of different animals. It has been found by Städeler and Frerichs in the muscles and almost all the organs of many cartilaginous fishes, but not in bony ones.

When the excretion from the kidneys is interfered with or suppressed, urea is found in nearly all the fluids of the body. In such case an increase of it is first observed in the blood, and after that it soon appears in the serous exudations; it has also been found in the bile and the saliva, in vomited matter, and even in pus and milk. Under such circumstances the sweat also contains much urea, so that even a slight crust of urea, according to Schottin, may sometimes remain after the evaporation of the sweat.

The question of the decomposition of urea in the blood, resulting from the formation of carbonate of ammonia, as asserted by Frerichs, has been a mooted one. Dr. Neubauer informs us that when introduced into the blood it is not decomposed under normal conditions, but is rapidly removed, so that in the course of a few minutes a distinct increase of the urea may be often observed in the urine. Gallois saw a rabbit weighing two kilogrammes killed by twenty grains of urea; first of all its respiration was retarded, then came on weakness of the limbs, tremblings, twitchings, general convulsions, rigidity, and death. The fact recorded of death from an excess of urea in the blood, unconverted into carbonate of ammonia, is in accordance with the experiments of Dr. Hammond.

For the exposition of the difference in the amount of urea while on an animal or vegetable diet we are indebted to Dr. Lehmann. Upon the first 819.3 grains were excreted, and upon the second 346.5 grains. Moreover, as shown by this physiological chemist, severe muscular exercise inducing wear of the tissues occasions an increase.

The chemical nature of urea has been sedulously investigated and its composition determined with great unanimity by investigators. Its conversion into carbonate of ammonia is readily understood when two equivalents of water are united with it. So far as researches have been pursued the changes with various chemical bodies are given in the work with great clearness, and to these the reader is referred for some very interesting information.

*Uric acid* is another important constituent of the urine. It has also been found in the blood, especially after extirpation of the kidneys, by



Strahl and Lieberkuhn, and more recently by Garrod. According to the latter, the quantity of it in the blood is always increased in gout. It has, moreover, been found in the spleen, in the parenchyma of the lungs and the liver of the ox, as well as in gouty deposits.

It is represented that the quantity of uric acid in human urine depends less upon the nature of the food than upon special conditions of the internal organs of the body, and in this respect it differs from urea. The quantity excreted in twenty-four hours by a healthy man, according to Becquerel, is from 0.495 to 0.557 gramme. Dr. Neubauer informs us that in some experiments he made upon a healthy young man, near 0.827 gramme was passed in twenty-four hours, with 36.4 grammes of urea in 2500 C.C. of urine. The quantity, however, is variable, from the observations of the author, and according to those of Ranke may vary relatively to urea from 1 : 50 to 1 : 80 in the 24 hours. An increase of uric acid in the urine is caused especially by derangement of digestion, and also by defective nutrition. It is increased in all febrile conditions of the body, and in affections of the lungs of an inflammatory nature. The ready decomposition of uric acid in the body by oxidizing agents seems clearly to indicate that its origin in the system has a close connection with the respiratory process.

Curious as it may appear, much smaller quantities of uric acid exist in the urine of carnivorous animals than in human urine. Vauquelin found the urine of a lion entirely free from uric acid, but Lehmann found that when this animal was confined for a long time, uric acid appears in considerable quantity, as happens to man under like circumstances, and is separated from the urine as urate of soda.

Uric acid when introduced into the healthy body is converted into carbonic acid and urea, and should the oxidating processes of the body be in any way retarded, as happens during sleep, it will also produce oxalic acid. Uric acid may be considered as a twin excretion with urea, but its intimate constitution has not been ascertained, much as it has been investigated. A series of highly interesting products of its decomposition have, however, been discovered. This much may be concluded from the chemical characters of uric acid, that it is like creatine, one of the representatives of the retrogressive metamorphoses of the nitrogenous constituents of the body, and that it stands higher in the scale than urea, being itself, by oxidation, converted into carbonic acid and urea. That it undergoes, at least in part, similar changes in the animal organism appears almost certain from the demonstrated fact of the presence of uric acid in the liver and spleen of herbivorous animals, in whose urine it is entirely absent.

As is known to every microscopist who has pursued urinary investigations, uric acid is presented in numerous forms which a practised eye can recognize; these seem to depend upon the agencies which affect the precipitation. Bearing upon this point, we are informed by Dr. Neubauer that he has obtained many different forms of uric acid crystals by mixing normal urine with varying quantities of hydrochloric acid. Any doubt existing as to the nature of particular crystals may be readily removed by converting them into some more ordinary form of uric acid. To do this, the crystals are dissolved on the object-glass of the microscope in a little caustic potassa, and on the addition of a drop of hydrochloric acid, crystals of the more ordinary form appear. An easy mode, also, is to heat with nitric acid, when the reddish-purple tint of murexide will appear.

There are some interesting facts connected with the chemical nature of this body which are well presented in this work. Pure uric acid, and the

purest is obtained from the excrement of serpents, is white, softish, in light crystalline tubular scales; is possessed of neither taste nor smell, is very slightly soluble in water; one part of uric acid requiring 14,000 to 15,000 parts of cold water, and 1.800 to 1.900 of hot water for its solution. Its solution does not redden litmus. It is very little soluble in diluted hydrochloric acid, and not at all in alcohol or ether. It is readily taken up without decomposition by strong sulphuric acid, but is precipitated on dilution.

Uric acid is readily dissolved in a solution of phosphate of soda, and, also, in several other salts of the alkalies. It takes from and combines with a part of the base of these salts, and so occasions the formation of acid salts. It is in this way that acid phosphate of soda, which is the chief cause of the acid reaction of the urine, is formed. By dissolving uric acid in a warm solution of phosphate of soda, it is easy to obtain a fluid having a similar acid reaction to that of urine, from which, on concentration, urate of soda is deposited in crystals.

When heated in a glass tube, uric acid is decomposed without undergoing fusion. It is converted into urea and cyanuric acid (sublimed in the form of a ring), hydrocyanic acid, and a little carbonate of ammonia, easily recognized by the smell; also, peculiar oily products appear, and a porous coal containing nitrogen remains. When uric acid is made into a thick paste with water, and boiled with peroxide of lead, it is decomposed into four bodies, carbonic acid, allantoin, urea, and oxalic acid. The allantoin and the urea may be readily recognized by their mode of crystallization, the oxalic acid remains in combination with the oxide of lead, and carbonic acid escapes with effervescence. According to Pelouze, a small quantity of allanturic acid is formed at the same time, and it is not improbable that the urea resulting from this decomposition is a product of a further oxidation of the allantoin, and the carbonic acid of the oxalic acid, so that the simple decomposition of uric acid by peroxide of lead yields only allantoin and oxalic acid.

When one part of uric acid is gradually mixed with four parts of concentrated nitric acid, sp. gr. 1.42, it is dissolved with effervescence, and the whole solution converted into a crystalline mass. The uric acid is converted into alloxan and urea. In the formation of these, two equivalents of water and two of oxygen are added to the uric acid. Alloxan, when further treated with nitric acid, takes up two equivalents of oxygen, and is converted into carbonic acid and parabanic acid, and parabanic acid passes into oxaluric acid. The latter acid, when boiled with water, passes into oxalic acid and urea. The interesting point in connection with the decomposition of uric acid, which can be followed in the formulæ which are given, is that, on comparing the various formulæ together, we find that one equivalent of uric acid, by the addition of four equivalents of water, and four equivalents of oxygen are decomposed; but two equivalents of urea, two equivalents of carbonic acid, and two equivalents of oxalic acid, passing through the intermediate forms of alloxan, parabanic acid, and oxaluric acid.

Now, if the oxalic acid be further oxidized by the addition of two equivalents of oxygen, there will remain as the final products of the decomposition of uric acid, carbonic acid and urea.

The inference deduced from the foregoing facts by the author is that the uric acid must in the normal condition of things undergo decomposition in the body, and we find that by an excess of permanganate of potassa it is directly converted into carbonic acid and urea; and that when the oxida-

tion is less complete, it passes into the form of allantoin, carbonic acid, oxalic acid, urea, and other products.

By the action of reducing agents, such as sulphuretted hydrogen, hydrogen, &c., upon a solution of alloxan, crystals of a new compound alloxantine are precipitated. This is much less soluble than alloxan, it crystallizes in oblique four-sided prisms, and becomes red under the action of ammoniacal vapour.

The important fact enunciated in connection with the complicated reactions that have been shown to take place is that alloxan and alloxantine are the source from which *murexide* proceeds, the most important of the uric acid reactions. Thus, when a solution of alloxan and alloxantine are mixed with ammonia, it becomes of a purple-red colour, and after a time deposits *crystals of murexide* ( $C_{16}H_5N_3O_{10} + NH_3$ , *purpurate of ammonia*). *Murexide* crystallizes in four-sided prisms, having a greenish cantharides-like reflection; when pulverized it forms a brown powder and dissolves in water with a deep purple colour. It serves on all occasions as a test for uric acid.

Uric acid, when treated with moderately dilute nitric acid, is dissolved, and alloxantine is then found in the solution. By carefully evaporating the solution almost to dryness, and by the further addition of nitric acid, alloxan will be formed out of the alloxantine. If the mixture be now acted upon by ammonia the beautiful colour of *murexide*, which passes into a purple-blue on the addition of caustic potassa, is obtained. By the aid of this test, the presence of the smallest quantity of uric acid may be recognized. If the residue (alloxan) be treated with potassa or soda, instead of ammonia, a beautiful purplish-violet solution is obtained, the colour of which becomes gradually paler when heated. Before the fluid is wholly evaporated its beautiful colour is completely lost.

An alkaline solution of uric acid immediately reduces nitrate of silver even without heat. If a drop of a solution of nitrate of silver be placed upon paper and moistened with a solution of soda in which a trace of uric acid is dissolved, a dark brown spot is immediately produced, though not more than  $\frac{1}{1000}$  part of uric acid be employed. Another interesting reaction takes place with copper. A white precipitate of urate of the suboxide of copper is produced, when a solution of uric acid in potassa is added to an alkaline solution of copper. On heating this preparation to boiling with an excess of the copper solution, the uric acid is oxidized, red suboxide of copper is separated, whilst the products of oxidation of the uric acid, viz., allantoin, urea, and oxalic acid remain in solution.

The next constituent of the urine to which allusion will be made is *Hippuric acid*, with respect to which some interesting statements have been given. Although hippuric acid is met with chiefly in the urine of herbivorous animals, it is present both in healthy and unhealthy human urine. Liebig states that he found it under the same conditions as uric acid, but it is rarer as a sediment. The later experiments of Hallwachs show that the quantity of hippuric acid passed during the 24 hours is greater than supposed. He obtained 1 gramme in that period from different persons, even when animal food was taken in excess. Its quantity is increased under vegetable diet, and in some diseased conditions, as in fever with acid urine and diabetes. The hippuric acid in urine of this kind when somewhat stale is readily converted into benzoic acid. Benzoic acid passes off with the watery vapour on the evaporation of urine, and hence its being overlooked. Conversely benzoic acid passes into hippuric acid, as it may

be obtained in the morning from a person who has taken benzoic acid in the evening. Six or eight grammes have been obtained. In the transit there are no evidences of irritation; the urine appears cloudy, although there is no increase of its free acid. When hydrochloric acid is added it yields crystals of hippuric acid. Any article containing benzoic acid produces the same effects, but succinic, according to Hallwachs, does not produce hippuric acid when taken internally, as asserted by Kühne. It could not be discovered either in the urine or feces, and consequently appears to have undergone complete decomposition. Hippuric acid has been found in the blood of oxen. Schlossberger has discovered that hippuric acid is present in the scales of the skin in ichthyosis.

With respect to the origin of hippuric acid, we are informed that it is, probably, the product of the decomposition of the nitrogenous constituents of the body. Its composition indicates that there is present a benzoyle compound, and Guckelberger has artificially prepared benzoic acid and benzonitrite by the action of nitric acid on proteine bodies. The question is then put: Why may not the nitrogenous compounds undergo like decomposition within the body, and the products afterwards be separated with the urine in the form of hippuric acid? This idea receives strong support from the researches of Hallwachs, who did not, in fact, discover benzoic acid or any benzoyl compound in the ordinary food of the cow, so that the benzoyl radical of hippuric acid could not possibly be derived directly from the food. The author concludes that hippuric acid is undoubtedly a secretion, but of its origin we cannot speak with certainty.

The easy conversion of hippuric into benzoic acid, as well as its peculiar form, constitutes the test between it and uric acid.

There are some other acids in the urine which are to be alluded to: thus, phenylic acid, discovered by Wöhler in castoreum, and afterwards by Städeler with taurylic, damolic, and damaluric acids, as constant constituents of the urine of cows, horses, and man. The first has poisonous properties, and is obtained from human urine in very small quantities only, so that it is at present doubtful whether it really exists already formed in the urine, or whether it is formed during the process required for its preparation. These acids, or at least the matters out of which they are formed, appear to be the cause of the odour of the urine. Städeler supposes that they all pre-exist in the urine, and that they are therefore products of the metamorphic process. Phenylic acid is found in coal tar, and is formed by the dry distillation of salacine with lime, as well as in the decomposition of many organic bodies at a red heat.

With respect to the presence of *creatine* and *creatinine* in urine the following summary may be given as derived from our author. Creatinine is the most powerful base met with in the body. It was first discovered by Liebig in the crystalline precipitate, which Heintz, and after him Pettenkofer, obtained by the action of a solution of chloride of zinc on concentrated urine. Liebig found creatine as well as creatinine in this chloride of zinc compound, and was consequently led to the conclusion that both these bodies exist originally in the urine. Heintz, however, has subsequently shown, by carefully conducted experiments, that fresh urine does not contain creatine. He found that the creatine is formed through the decomposition of the chloride of zinc compounds, the creatinine of which takes up water, and is converted into creatine, which view has since been confirmed by Liebig and Dessargnes. Again, creatine is readily converted into creatinine by abstraction of its water, and therefore the creatine,

which is always found in the juice of flesh, may be converted into creatinine by the loss of water, either in the flesh itself, or, more probably, in the blood, and thus be eventually discharged with the urine in the form of creatinine.

Lehmann thinks that further investigations are required to show whether the creatine of muscle is invariably converted into creatinine and thus evacuated, or whether it may not also assist in the formation of urea; the latter view is, in some degree, favoured by its ready conversion into sarcosine and urea, when boiled with baryta water. Dessargues, on the other hand, is of opinion that the juice of muscle originally contains creatinine only, like the urine, and that it is only after its separation, and under the long-continued action of heat, that the greater part of it is converted into creatine in the neutral fluid. With the authors this view does not find favour, for, by Städeler's method, creatine is obtained from muscle so readily and in such pure state, that it is difficult to conceive how, in so short a time, the greater part of the creatinine can be converted into creatine by taking up water.

According to the observations of Dr. Neubauer, from 0.6 to 1.3 grammes of creatinine is passed by a healthy man on good mixed diet, in an average quantity of 1500—1600 C.C. of urine, in twenty-four hours. For the mode of procuring creatinine and the chemical characters it presents, we must refer to the work, stating, nevertheless, that the exposition is admirable from its fulness of details and perspicacity.

As a rare ingredient of the urine we may refer to *xanthine*, which was first discovered by Dr. Marcet, of London. It is called also uric oxide. Although rarely found in the form of calculi, yet it has been detected by Sherer in the human urine, in the spleen, the pancreas, and brain, in the liver of the ox, the thymus gland of the calf, and the muscles of the horse, of the ox, and of fishes; he also found it in an enlarged spleen, and in the liver in a state of yellow atrophy. Its origin is obscure.

The next subject to which attention will be directed is that of the urine pigments. Those which are noticed are *urohæmatine*, *uroxanthine*, *uroglaucline*, and *uroerythine*. The first, or urohæmatine, is surmised by Dr. Neubauer to be the normal colouring matter of the urine, and like bile pigment, to be a modification, or product, of the decomposition of the hæmatine. This subject has been investigated by Dr. Harley, who succeeded in the preparation of a pure substance, which he satisfied himself was modified hæmatine of the blood. It is obtained from urine evaporated to the consistence of treacle and removing the salts, by the solvent action of alcohol. The alcohol is deeply tinged, it is boiled and treated with milk of lime, until the colour disappears, filtered and washed with water and ether. The compound of lime and colouring matter, when dry, is treated with hydrochloric acid and alcohol and filtered; the alcoholic solution is mixed with an equal quantity of ether, and, being frequently shaken, is left to stand for several days that the ether may take up as much as possible of the colouring matter. On the addition of water the ether charged with the colouring matter separates and is removed; it has a beautiful wine-red colour; by further washing it is purified from acids and salts. When the ethereal solution is evaporated, a dark-red amorphous substance is left on the saucer, which becomes of a splendid red colour when dissolved in alcohol and ether, and in many respects, especially in its relation to acids and alkalies, closely resembles hæmatine. When this colouring matter is burnt a little residue remains, which consists solely of oxide of iron.

Uroxanthine is found in diseased conditions of the urine, and but rarely in the healthy fluid. It gives the urine an intensely light-yellow colour, and has the peculiar character, when acted upon by acids, of producing two new pigments, *uroglaucline* and *urrrhodine*; a saccharine substance being at the same time separated. By Schunck this body is regarded as similar in constitution to indican, procured by him from the indigo plant.

Uroërythine, according to this authority, is the pigment which gives to sediments of uric acid and urate of soda their brick colours, the intensity of which increases on exposure to the air. It also appears in solution in abnormal urine, and gives to it its red colours. This is the pigment to which, undoubtedly, Dr. Bird gave the name of purpurine. It is evident from the above statements that the pigmentary matter is not a simple substance, but a highly complicated series of bodies, which are dependent upon chemical reactions not entirely comprehended.

The *inorganic constituents* of the urine which are treated of are chloride of sodium, chloride of potassium, sulphates, acid phosphate of soda, phosphates of lime and magnesia, ammoniacal salts, iron, and silicic acid. The acid phosphate of soda is undoubtedly present in the urine, and in most cases the chief cause of the acid reaction. With regard to the amount of phosphoric acid in the urine, numerous calculations have been made, especially by Breed. From 3.76 to 5.18 grammes was the average of phosphoric acid passed during twenty-four hours, by several persons. But Dr. Neubauer states that he has not found more than 2 grammes in the twenty-four hours. Phosphoric acid was found to be somewhat augmented by increase of drink, but, according to Winter, this has happened only during the first two or three hours after drinking. Winter also found that the quantity of phosphoric acid in the urine was considerably greater during the night than the morning, and that it was greatest in the afternoon, for, as Winter and Breed both observed, the taking of food increased very greatly the quantity of phosphoric acid. In diseased states the variations are considerable.

Under the head of abnormal constituents, are discussed albumen, fibrine, sugar, alkapton, inosite, bile and its components, lactic, acetic, and benzoic acids, fat, sulphuretted hydrogen, allantoin, leucine, and tyrosine.

Pathologically, *albumen* is found in the urine under various conditions, in slight as well as in the most serious disorders of the body. In a perfectly healthy state no albumen passes away with the urine. The presence in the urine is not invariably an evidence of kidney disease, as there are periods in the course of many chronic and acute diseases during which albumen appears in the urine. Bright's disease embraces many forms of kidney affection. The following directions for testing urine with the view to determine albumen in it are valuable. The reaction of clear or previously filtered urine is first tried, and a test-tube half full of it is then heated over a spirit lamp. If it contains albumen and has an acid reaction, the surface of the urine becomes turbid when the heat exceeds  $70^{\circ}\text{C}$ . ( $158^{\circ}\text{F}$ .), and coagulation of the albumen quickly follows. If the urine be either neutral or alkaline, the coagulation will not take place, but there will be slight turbidity, even if there be a considerable quantity of albumen present, in consequence of its remaining in solution with the alkali. But if before heating, a little acetic acid be added, avoiding excess, a flaky coagulation will take place in the urine when boiled. If again the urine be very acid, and contains free hydrochloric acid or nitric, which happens when these acids have been taken internally, boiling may fail to show the albumen.

The urine must then be neutralized lightly by ammonia diluted. When all these precautions have been taken, if we obtain on boiling the urine a turbidity or precipitate, which on cooling is not dissolved by nitric acid, we may consider the absence of albumen in it demonstrated. Dilute nitric acid added to albuminous solutions throws down a white precipitate of nitrate of albumen, soluble in a large quantity of water, which, as our author observes, is an important fact.

Cases, however, are occasionally met with in which a precipitate is formed on boiling the urine, particularly if the urine be only slightly acid or neutral, but in which nevertheless no trace of albumen is present. Such precipitate consists of phosphoric earths, which, in slightly acid urine, are generally held in solution by the free carbonic acid. On the expulsion of the gas by boiling, the phosphates are precipitated in a flocculent form, and can then scarcely be distinguished by the eye from coagulated albumen. All doubt of its nature is immediately removed by the addition of a few drops of dilute hydrochloric acid to the urine in which is the deposit. If the precipitate consists of phosphates it will immediately disappear, but if of albumen will remain unchanged.

Nitric acid is another test for albumen. When much albumen is present this acid causes a deep white cloudiness in it, or converts the fluid into a whitish mass. In this case it is very obviously present, but it is very different when only a small amount of the albumen is present; in such a case a slight cloudiness may be overlooked, or it may depend upon the precipitation of other matters, and especially of urates, more rarely of urea, and be mistaken for albumen. In these cases, therefore, we must add the nitric acid carefully. The best process is that recommended by Heller. A small glass is filled two-thirds full of urine, and a little nitric acid then carefully and very slowly poured down its side, so as to allow of its collecting on the bottom, or the nitric acid placed in the glass, and the urine carefully poured on the sides of the glass, to allow of its collecting on the surface of the acid. A well defined turbidity will then be observed in the layer of urine above the nitric acid if the urine contain albumen. This cloudy layer contrasts with the rest of the urine, and cannot be readily overlooked.

A cloudiness of the urine depending upon urates may be also caused by nitric acid, but in such case it is only well defined in the lower layer of urine immediately over the acid, cloudy streaks being formed above in almost all parts of the urine. A practised eye indeed is able in this way to distinguish between albumen and salt of the urates when they occur together and occasion cloudiness of the urine. Immediately above the clear layer of acid there is a well-defined cloudy layer of coagulated albumen, above this there is another clear layer, and then a layer which is rendered cloudy by urates.

*Sugar* as an ingredient of the urine in diabetes is easily recognized. With respect to its origin, and the pathology of that disease, much remains to be discovered, and notwithstanding the facts which have been given to us the true causation is still a mystery. As there is no doubt that sugar is normally formed in the body and that its appearance in any of the excretions is abnormal, except perhaps in the merest traces, we are necessarily led to the conclusion that it gradually undergoes further changes in the body, passing through several intermediate forms with which we are not yet acquainted, and that it is at last completely oxidized, and passes away from the body in the form of water and carbonic acid.

The numerous researches of Brücke show that healthy urine frequently contains traces of sugar. In diabetes sugar is found increased in the blood, in the matters vomited, the saliva, sweat, &c. In other diseases sugar is also occasionally found, as in cases of disturbance of the abdominal circulation and injury of certain parts of the medulla oblongata. According to Lehmann, saccharine urine is observed in women in twenty-four hours after weaning. For the detection of sugar the author has presented all the methods in use by chemists.

*Alkapton* is a peculiar substance found in the urine by Bödeker. The patient was a man forty-four years of age, who, after an attack of typhus, suffered from repeated attacks of cough and expectoration. The patient at the same time had severe pains in the back, passing down to the lower dorsal vertebræ and thence round the body. This substance, when an alkali is present, absorbs a large quantity of oxygen, and becomes of a brown color. In the case mentioned the quantity of urine in twenty-four hours was about 1500 C.C., its sp. gr. 1.020 to 1.025, and contained not more than one per cent. of sugar. On the addition of caustic potassa the reddish-yellow colour of the urine changed, from above downwards in the test-tube to a dark brown, a large quantity of oxygen being at the same time absorbed, of which fact Bödeker satisfied himself by a special experiment. The copper solution was strongly reduced by the urine. The mode of testing for *alkapton* is the following: A drop of nitrate of bismuth solution is treated with an excess of soda and the mixture poured into two test glasses, to the one *alkapton* alone is added, and to the other *alkapton* mixed with a trace of diebetic sugar. When the first test is boiled the fluid merely becomes of a brownish colour; the oxide of bismuth certainly throws down somewhat of a brown mass, which is formed by the oxidating action of the air, but this is not to be compared with the perfect reduction of the bismuth in the second tube, to which the sugar has been added. The *alkapton* also behaves like uric acid in relation to the copper solution and oxide of bismuth, when an excess of soda is present, in so far as that the uric acid is able to reduce the oxide of copper to a state of sub-oxide, but not the oxide of bismuth. By this character of *alkapton*, in addition to its behaviour under the action of oxygen in an alkaline solution, we are able to distinguish it from sugar, and to ascertain the presence of sugar as well as of *alkapton*.

*Inosite* has been discovered in the urine, in a case of Bright's disease, by Cloetta. He has also found it in the lungs, together with uric acid, taurine, and leucine, and in the liver with uric acid, in larger quantities in the kidneys, also with cystine and hypoxanthine. Nenkom found *inosite* most abundantly in the brain; he also met with it abundantly in the kidneys and in diabetic urine, which contained a large quantity of sugar. Vohl met with a case of diabetic urine in which the sugar was gradually replaced by *inosite*. According to the last, this principle is identical with phaseomannite, discovered by him in unripe beans. It forms cauliflower-like crystals, massed together in groups; sometimes, however, single crystals are found three or four lines in length.

Bile pigments consist of two principles, *cholepyrrrhine*, or brown pigment, and *biliverdine*, or green pigment. The first is the bile pigment most frequently met with, and appears to be the primary form. It consists of a reddish-brown powder, without taste or smell, dissolves with difficulty in water and ether, but more readily in alcohol. The alcoholic solution, which is originally brown, becomes gradually green when exposed to the



air. It is soluble in alkalis. The feebly alkaline spirituous solution becomes of a beautiful green on the addition of hydrochloric acid; the colour becomes of a bright blue on the addition, guttatim, of nitric acid. When red fuming nitric acid is dropped into a solution of brown pigment, without disturbing it, a zone of colours is formed in the lower part of the fluid, which passes through the shades of green, blue, and violet, into red, and finally becomes of a dirty yellow. In this process the colouring matter is entirely altered. Cholepyrrhine appears to be chemically identical with the *bilifulvine* of Virchow and Valentiner. Bilifulvine was found by Virchow partly crystallized and partly amorphous in the bile of the dead body, the bile having been left stagnant for a long time in the gall bladder. Valentiner, however, succeeded by means of chloroform in obtaining from the bile itself, and also from fluids containing bile, the substance which exhibited under the reaction of nitric acid characteristic reactions. On evaporation of the chloroform solution, the pigment was left in the form of beautiful translucent reddish-yellow, or ruby-red crystals. These crystals were in all respects identical with crystals of hæmatoidine, found in old extravasations of blood, a fact of high physiological significance. The chloroform solution, tested with nitric acid, exhibits in a beautiful manner the play of colours mentioned above as characteristic of bile substances. Hence, we possess in chloroform an excellent and certain means of discovering the presence of bile pigment in other fluids.

*Biliverdine* is the form of a pigment into which cholepyrrhine often passes, and into which indeed it may be converted. It is a dark-green amorphous substance, without smell or taste, is slightly soluble in alcohol, but insoluble in water; in ether it dissolves with a red colour; muriatic and sulphuric acids in dissolving it become of a green colour.

The bile acids are *taurocholic* and *glycocholic*. The test which is given is that of Neukomm, which is asserted to be superior to that of Pettenkofer.

A section is given to lactic acid as well as to acetic, butyric, and benzoic acids. Fat and sulphuretted hydrogen are also mentioned, and their means of detection.

*Allantoine* was met with in the urine of man by Schottin after the ingestion of a large quantity of tannic acid. *Leucine* has also been found in the urine in the course of certain diseases, as typhus, smallpox, and atrophy of the liver. It takes the form of white crystalline scales, has a fatty feel, and is without taste or smell. *Tyrosine* is formed in exactly the same way as leucine, and is produced either somewhat later, or more generally at the same time as leucine, during the decomposition of highly nitrogenous animal matters. Frerichs has found it, together with leucine, in large quantities in the urine of patients suffering from typhus, smallpox, and acute atrophy of the liver. Leucine and tyrocine have not yet been found in the urine of healthy persons. In acute atrophy of the liver both are present in large quantities, whilst, at the same time, only traces of urea and substances which normally represent the final products of the metamorphoses of the tissues, are found in the urine. Urine of this kind often deposits spontaneously a softish, greenish-yellow sediment, consisting of round glandular masses of needles of tyrosine, and when evaporated on an object-glass leaves numerous crystals of leucine and tyrosine.

Under the head of sediments of the urine there are a number of considerations which are worthy of notice, in explanation of the changes that take place in urine that has been voided. The cause of the constantly acid reaction of healthy human urine has been much disputed. Liebig thinks

that it depends chiefly upon the presence of an acid phosphate, which has been shown is the phosphate of soda. According to the researches of Lehmann, however, there can be no doubt that, in many cases, free hippuric and lactic acids exist in the urine, and consequently assist in giving to it the acid reaction. The urine may be preserved for a long time, protected from the contact of air, in a closed glass vessel, without suffering any particular decomposition. But when exposed to the air, peculiar and important changes take place in it. If left to itself in an open vessel, slight clouds of mucus begin to form in it, which gradually sink to the bottom of the vessel. In the mucus we find, under the microscope, some pavement epithelium of the bladder and urethra, as well as mucous corpuscles, united together by fine granular shreds of mucus. A deposit of urate of soda may often be readily recognized in it.

When the urine has been left at rest a still longer period, and especially under the influence of a moderate degree of heat, its acid reaction becomes stronger, and distinct crystals of impure uric acid are at the same time deposited on the sides and bottom of the vessel. This increase of the acidity usually goes on for some days, and may even continue for two or three weeks. The acidity, however, at last begins suddenly to diminish and gradually disappears. The urine now changes its colour, and becomes lighter, a whitish, iridescent pellicle forms on its surface, and the presence of an unpleasant ammoniacal odour indicates that it has become alkaline, the crystals of uric acid disappear, and whitish granules and colourless, highly refractive prismatic crystals are formed.

These two series of phenomena may be distinguished by the names of *acid* and *alkaline* fermentation of urine.

Scherer has arrived at some interesting conclusions respecting the decompositions which attend these fermentations. He considers the vesical mucus as the original promoter of the acid fermentation; he regards it as the ferment, whose presence occasions a decomposition of the extractive colouring matter, this matter being converted into lactic and acetic acids. In this way the increase of free acid in the urine is produced. A considerable quantity of fungi at the same time may be seen in the urine by the microscope, which may be regarded as the proof, and probably, also, as the promoter of fermentation; they closely resemble the cellules of the yeast plant in their external character, but are smaller; their mode of growth is similar, and so also their linear arrangement. In consequence of the formation of the above acids, the uric acid is separated from the bases and thrown down in the form of crystals. Crystals of oxalate of lime may also be detected in some cases.

The free acid of the urine, after a longer or shorter period, at length begins to diminish, and then commences the second fermentation, or alkaline. The urea is now decomposed and converted into carbonate of ammonia, the crystals of uric acid disappear, and whitish crystals of urate of ammonia, as well as prismatic crystals of urate of soda, which often stud the dissolving crystals of uric acid in a radiated form, take their place. As the decomposition proceeds, and as the alkaline reaction commences, a part of the ammonia unites with the phosphate of magnesia, and large quantities of the ammonio-phosphate of magnesia are thrown down. The foregoing account of ordinary reactions is exceedingly clear, and we must now direct our attention to the sediments.

The sediment which, according to our author, is most frequently met with is the *urate of soda*. It is often noticed that the urine, which is perfectly

clear when passed, lets fall this sediment shortly afterwards. In such case we may conclude that the urate of soda is increased to such extent in the urine that it cannot remain in the urine at ordinary temperatures. This idea is confirmed by the circumstance that the sediment is usually redissolved when a less concentrated urine is added to it, or when it is heated. The sediment may not take place for twelve or twenty-four hours after the urine has been passed, and Becquerel has observed that urine which throws down no sediment often contains more urates than urine which deposits a sediment. Lehmann thinks that the cause of the deposition of the urates is to be found in the colouring extractive matter, which also, according to Scherer's observations, occasions the separation of free uric acid as a sediment. According to Lehmann, the solubility of the urate of soda is increased by the colouring extractive matter, and the decomposition of the pigment exercises an influence over the entire constitution of the salt.

The colouring matter of the urine undergoing decomposition when subjected to the influence of the air, and free acids at the same time being produced, if we expose to the air sediment which is originally colourless and contains no free uric acid, the beautiful red colour of urine pigment will first appear in the moist sediment collected on the filter, and if we now endeavour to dissolve it in water, more or less uric acid in the form of beautiful crystals will be left behind. The rationale is this, that as free acids are formed from the decomposition of the pigment, a portion of the base is separated from the urate of soda, the filtered liquor having a neutral reaction. Scherer has proved that the decomposition of the pigment matter is to be considered as the sole cause of the production of uric acid sediment. It is very rarely found in fresh urine, and we know that the acidity of urine in the first instance increases, and with the acid fermentation is the deposit of uric acid. The separation of the uric acid takes place out of the body, or if it occurs in the bladder, as has been stated, the mucus of that organ acts upon the pigmentary matter forming free acid, which in its turn acts as the decomposing agent on the urates. The oxalate of lime which is found in the deposit is intimately connected with the separation of uric acid.

With the alkaline fermentation threads of fungi, *conserve* and *algæ* are produced, and with the ammonio-magnesian phosphate may be discovered phosphate of lime.

The urates are well-known deposits, as are their chemical habitudes. There are some points in connection with *oxalate of lime* which are worthy of notice. It appears in the urine both normally and pathologically as a sediment in the form of well-marked crystals. It is chiefly met with in cases of impeded respiration, in emphysema of the lungs, and during convalescence from severe diseases, particularly from typhus. According to Lehmann, the oxalate of lime is held in solution in the urine as it comes fresh from the bladder, and in the opinion of our author this is probable, as the oxalate is tolerably soluble in a solution of biphosphate of soda, the source of acidity. This is further proven by experiment, for when the urine is filtered and evaporated, and moderately concentrated alcohol added to the solid residue, and subsequently ether is shaken with the spirituous extract, we find in the extract beautiful crystals of oxalate of lime.

Vegetable diet, effervescing wines and beer, as well as the internal use of bicarbonate of the alkalies, alkaline salts of the organic acids, free uric acid, and salts of uric acid often increase the quantity of oxalate of lime in the urine. It is supposed by Vogel that oxalic acid is formed by the

decomposition of animal, vegetable, and mineral bodies. Thus it is formed by the oxidation of uric acid, by the imperfect oxidation of sugar, starch, and salts of the vegetable acids, these salts through the deficiency of oxygen passing out in the form of oxalates instead of carbonates. It is probable, moreover, that oxalates may be formed from salts of the carbonates and bicarbonates, the salts being deprived of a portion of their oxygen, and thus reduced to the condition of oxalates. There is no allusion by either of the two authors to the hypothesis of Dr. G. Bird that urea, as well as uric acid, may be a source of oxalic acid. This subject has been ably presented by the last named authority, and in fact constitutes one of the best chapters in his admirable treatise, which has been entirely overlooked by his German contemporaries; indeed we have not found his name alluded to in the entire book.

The question has not yet been satisfactorily answered, how comes it that oxalate of lime, which is nearly insoluble in aqueous fluids, passes through the walls of the renal capsules into the urine? We may suppose with Dr. C. Schmidt that this salt forms a soluble compound with albumen, and passes in solution from the blood into the urine, the compound being decomposed in the urinary passages and the oxalate separating as a sediment. Or we may imagine that oxalic acid is first formed in the urinary passages in the manner stated, from the decomposition of other substances, and when thus formed unites with the lime which is always present in the urine. Another supposition has been made by Kletzinsky, which is that oxalic acid and lime when brought in contact in very dilute solution, do not immediately form an insoluble oxalate of lime, but a certain time is required for their combination. This idea was tested by the following experiment: he added oxalate of ammonia to urine rendered strongly acid with acetic acid. The urine was then gradually passed through a fourfold filter, in fact through four filters, and he found that a fine crystalline cloudiness of oxalate of lime was always formed after a short time in the clear filtrate, which had passed through the last of the filters. Moreover, he introduced the fluid into an endosmometer closed with an ox-bladder, which was then dipped in pure lukewarm water. In this case, he also found, in the course of two hours, crystals of oxalate of lime in the water outside of the bladder. The salt of lime together with the oxalate of ammonia was here manifestly diffused through the animal membrane, the union of the oxalic acid and the lime having taken place outside of the bladder. All three of these modes of combination may be true.

From the origin that has been given of oxalic acid, in fact deficient oxygenation, the mode of removal becomes apparent by conversion into carbonic acid. The exhibition of nitric acid is founded upon true chemical principles, and as has been shown by Bird, preferably in conjunction with a bitter tonic. The same description of the symptoms and the mode of treatment is to be found in the English treatise which are given in the German work with the citation of Dr. Begbie as authority.

Occasionally oxalate of lime produces great irritation of the bladder. Sufficient importance has not been given to this fact in any of the treatises with which we are familiar. An instance of the kind fell under our observation where great suffering was created by this cause, and which was relieved by the treatment which has been mentioned.

Other sediments, as the earthy phosphates and cystine, are discussed, and their characteristics, as well as the tests, presented. Under the head of organic sediments, mucus and epithelium, blood, pus, urinary casts and

cylinders, spermatozoa, fungi, and infusoria, have each a section devoted to them.

The occasional constituents of the urine are referred to in a general way without going into the details of all the cases that have been met with. The following facts must be premised before we proceed to the consideration of these accidental substances. It is evident, as a rule, that only those substances can pass unchanged into the urine, which, in the first place, do serve for nutrition, and which, secondly, are soluble in water, and have no tendency to form insoluble compounds with the inorganic or organic compounds of the body. The most soluble of the alkaline salts will readily pass into and be found unchanged in the urine. If a substance be taken into the body which is not oxidized, but which has a tendency to undergo oxidation, it will be found in the urine in an oxidized state; sulphide of sodium is an example, as it is found in the urine as the sulphate of soda. All substances, however, which form with the organic matters of the body compounds that are insoluble or difficult of solution, such, for example, as most of the metals form with protein bodies, only reappear in the urine when they have been taken in large quantity. This was determined by Orfila.

We find that many organic substances undergo the same changes in their passage through the body as they may be made to undergo out of it. Bitters again become so completely oxidized that it is not possible to find either them or the product of their decomposition in the urine. There are others again which lose oxygen, and appear in the urine in a lower stage of oxidation. With respect to the time required for elimination, it may be said that substances easy of solution are quickly separated from the body with the urine, but there is a difference in individuals; thus Lehmann found that not a trace of iodine could be perceived in the urine of several persons twenty-four hours after they had taken two grammes of iodide of potassium, whilst in others it was still present after an interval of three days.

It is well known that Orfila found antimony, arsenic, zinc, gold, silver, tin, lead, and bismuth in the urine after large doses of the metallic salts had been taken; but they could only be found in the liver and its secretions as well as in the solid excrement, when taken in small and repeated doses. Iron, when taken internally, may be often immediately discovered, but again can only be detected in the ash. Electrolysis has of late been employed to determine the presence of mercury in the urine. Schneider has given a process for the detection of this metal, and he found that during the internal use of the mercurial preparations the urine always contained mercury. A conclusion at which this authority arrived is important, that the generally received opinion of the action of iodide of potassium on the metals which are retained in the body is by no means supported by experiments.

In concluding this part of the subject of urinary ingredients, a reference to the existence and the detection of the principles of organic vegetable medicinal substances cannot but be interesting. Quinia is readily found in the urine when moderately large doses of it have been taken. According to Viale, tannic acid is a trustworthy test of the presence of this article in the urine; the precipitate thrown down by tannin with quinia is very light, of a whitish colour with a slight greenish tint; the precipitate treated with a solution of chlorine in water, and with the addition of ammonia, assumes a green colour characteristic of the salts of quinia. Viale has in this way succeeded in demonstrating the presence of quinia

in the urine, in cases where only the decoction of bark had been taken. The same fact has been tested and confirmed by Kerner. Herepath's test with iodine, or the iodo-iodide of potassium, may be employed as practised by Briquet.

Theine and theobromine cannot be discovered in the urine; the reactions of benzoic acid have already been referred to. Tannic acid is converted into gallic acid, and appears as such. Camphoric acid is separated unchanged, while amygdalin cannot be distinctly found in the urine; but the urine contains, according to Lehmann and Ranke, an appreciable quantity of formic acid. Salicine is decomposed by oxidizing agents probably, and the urine contains hydride of silicic, silicic acid, saligenine, but neither sugar nor phenylic acid.

The second and third parts of Dr. Neubauer's treatise is devoted to the quantitative and qualitative analyses of urine. They contain a full exposition of the methods required for these purposes in accordance with the lights which have been afforded by chemical research, and a description of the apparatus requisite for accomplishing the purposes in view. They can only be brought into service by one who is well versed in the details of chemical investigation. This portion of his book cannot but be of assistance to the inquirer who has the means and the leisure at his command for such research. The microscopical characters of urinary sediments and formations are satisfactorily described, and, with the aid of plates drawn for the most part from Funke Allas, will impart the information on this interesting department of urinology sought for by the student. A section on the preservation of urinary deposits is an acceptable addition.

The treatise of Dr. Julius Vogel on the semeiology of the human urine covers much the same ground as that of Dr. Neubauer, and a review of it separately would be but a repetition of what we have presented; in fact, in preparing the present essay we have largely borrowed from him in the illustration of particular points in the history of the urine as exhibited by his associated author. The works before us are full exemplifications of German industry and completeness in the labours of their scientific men, and are most valuable guides to those who may devote themselves to this branch of medical science. Were we to indulge in any criticism it would be that, taken as a whole, the labours of Drs. Neubauer and Vogel are too profound for the generality of medical men whose chemical knowledge is not sufficient to comprehend the propositions given. For those who desire to pursue thoroughly the research into the elaborate composition of the urine, both in a normal and pathological state, they will prove of the highest service, and as such we commend them to their attention. In writing this review we have avoided extreme technicalities as much as possible, so as to present a summary of results and explanations which will illustrate the importance and interest of the subject, and set forth its practical bearings. From the direction which medical science is now taking, the value of thorough chemical training becomes more and more apparent; as all, however, cannot find time for the minutiae of experiment, there must be a class of experts to take the drudgery of analytic investigation, by whom those engaged in the practical pursuit of medicine must be directed; the practitioner ought therefore to be the intelligent and appreciative recipient of the information afforded him, and be able on right principles to put his knowledge into operation to the greatest advantage of his patient, yet this can only be done by him who has thoroughly been grounded in chemical knowledge.

J. C.

## BIBLIOGRAPHICAL NOTICES.

ART. XIX.—*Transactions of State Medical Societies:—*

1. *Transactions of the Seventeenth Annual Meeting of the Ohio State Medical Society*, held at Ohio White Sulphur Springs, June 17th and 18th, 1862. 8vo. pp. 124. Cincinnati, 1862.
2. *Transactions of the Medical Society of the State of New York for the year 1863*. 8vo. pp. 442. Albany, 1863.
3. *Transactions of the Medical Society of the State of Pennsylvania at its Fourteenth Annual Session*, held in Philadelphia, June, 1863. 8vo. pp. 356. Philadelphia, 1863.
4. *Transactions of the State Medical Society of Indiana, at the Thirteenth Annual Session*. Held in the City of Indianapolis, May 20 and 21, 1863. 8vo. pp. 50. Indianapolis, 1863.

1. THE volume of *Transactions of the Ohio State Medical Society* commences with the "Valedictory Address" of the retiring president, Dr. W. B. WRIGHT, of Cincinnati.

Following this is a prize essay by Dr. H. CULBERTSON, of Zanesville, on "The Use of Anæsthetics in Obstetrics." The questions involved in the theme of this essay are, upon the whole, well and thoroughly examined; still, there is perceptible in the investigations of the author, and his collation of the facts from which his conclusions are deduced, a very evident *a priori* bias in favour of the use of anæsthetics in labour. The leading question as to the influence of these agents upon the duration and progress of parturition does not seem to have been thrown open to its widest extent, nor the entire series of observations bearing upon it followed out to any and whatever conclusions they may lead.

The conclusions to which Dr. W. arrives are as follows:—

No nervous connection exists between the mother and the fœtus in utero by which the latter can be affected by anæsthetics given to the former during labour; nor is it probable that these agents can act upon the fœtus through the circulation, excepting in protracted cases, and then not to an extent sufficient to cause injury.

Anæsthetics promote labour by relaxing the cervix and os uteri and the perineum, and to a limited extent, also, by exciting the expulsive action of the body and fundus of the uterus. The latter effects occur, likewise, when anæsthetics are given by the mouth. While it is true that in certain stages of labour these agents retard the action of the womb, in others they accelerate it; hence they will not be found, upon the whole, to lengthen the entire period of parturition.

The state of the circulation in the pregnant and parturient female presents but in very few instances any obstacle to the use of anæsthetics, while many of the complications of pregnancy and parturition demand their use. Most unnatural cases of labour are by them rendered more amenable to the aid of art.

The nervous system in most cases of labour is placed by the use of anæsthetics in a highly favourable condition for the recovery of the patient. The pain of parturition so excites the nervous system as to cause a tolerance of anæsthetics. The excitement or sedation which occasionally results from their use presents no real obstacle to their employment, inasmuch as neither of these effects is followed by bad results.

Anæsthetics promote the vaginal secretions.

No well-marked case has been reported of death to either mother or child

from the use of these agents in labour. The blood changes which occur from the inhalation of anæsthetics are not peculiar to labour. They are merely a darkening of the blood from the retained carbon, as well as a decrease in its density.

Nausea and vomiting sometimes result from the use of anæsthetics in labour as well as in other cases.

Further experience is required to determine the particular temperaments in which these agents act best, and those in which their action is most unfavourable.

The quantity given of anæsthetics is generally in excess. With a proper instrument the amount could be measured, and a safer state of anæsthesia secured.

The first effect of chloroform on the animal fibre is to cause contraction, and the second relaxation. The labour pain induces contraction of the vascular system and increased activity of the circulation. Chloroform, and, perhaps, ether also, do not affect the secretions unfavourably. Ether is the most stimulating; chloroform the more sedative. The first is, in general, active enough for ordinary labour; the second is needed in surgical midwifery, where profound anæsthesia is desirable, unless maternal sedation counter-indicate its use. Ordinarily, a state of partial insensibility is all that is necessary; but in extraordinary cases, where manual or instrumental interference is called for, complete unconsciousness must be induced.

Diseases of the organs of the chest and of the head generally contra-indicate the use of anæsthetics—not necessarily those of the abdomen.

Anæsthetics promote convalescence, both directly and remotely, by preventing the evil consequences of suffering.

Dr. W., from the result of several experiments, performed by him on animals, suggests galvanism as a means of restoring persons apparently moribund from the use of anæsthetics.

The following are laid down as the indications for the use of anæsthetics in labour:—

Where the resistance to expulsion is unusually great, and removable by relaxants, anodynes or instruments. When there is an unusual sensitiveness of the nervous system, causing great intolerance of pain. Cases of nervous excitement. Cases of shock from acuteness of pain. Cases of involution, spontaneous and manual, or of instrumental delivery. Labour which is protracted and harassing, or ineffectual from abortive uterine action. Cases of convulsions independent of cerebral congestion, or hysterical convulsions during labour.

The contra-indications for the use of anæsthetics in labour are:—

Where the labour presents great exhaustion from loss of blood, organic lesions, or nervous exhaustion, previously to stimulation. When there is habitual syncope or marked tendency to it. When there is prolapsus of the funis. In cases of hemorrhage or of uterine inertia, before stimulants and ergot have been effectually employed. Where the labour is rapid, attended with comparatively little suffering, and demanding no aid. When there is dilatation of the heart cavities, but not necessarily where there is hypertrophy of the walls. When there is extensive organic disease of the lungs, of its membranes or parenchyma—of the brain and the upper portion of the medulla spinalis. When the female is of an apoplectic habit, or predisposed to convulsions; previous to proper medication. In cases which evince the morbid effects of the abuse of alcoholic liquors.

The "Report of the Committee on Medical Literature," presented by Dr. J. O. Reeve, of Dayton, is in great part occupied with a consideration of the value of a well-conducted periodical medical literature to every member of our profession, whether he be located in a large and populous city or in a remote and sparsely populated agricultural district; followed by some strictures on the character of the medical periodicals of the State of Ohio, and of the United States generally.

No one will probably contest the statement made by the author of the report, that the medical journal is an absolute necessity to every intelligent and studious member of our profession. Every branch of knowledge connected with the science of medicine is making rapid advances; consequently there is constantly



accruing an amount of knowledge beyond what the physician has acquired from the teachings of the schools, or from the received systematic works of the day. This knowledge can in no way so readily and quickly find its way to the members of our profession as through the pages of the medical journal. Epidemic, and even endemic diseases, are constantly occurring which, if not altogether of an entirely novel character, present often unusual features. The history of these affections is to be recorded for the instruction of the profession in the present and coming times, and no more appropriate medium presents itself for this record than the medical periodical. New books are issued from the press in too great numbers for the purses of the great majority, and for the time of very many physicians, to purchase and to study. Through the analytical notices of the medical journal, the busiest practitioner may acquire a valuable acquaintance with the most important of the contents of such works, and the poorest be consoled for his want of means for their purchase. At no former period has the press exercised so powerful and wide-spread an influence as it does at present over everything appertaining to the body social, political, religious, and scientific. Equally influential is it daily becoming in matters appertaining to the institutes and practice of medicine. Besides the spread of knowledge among every branch of the profession, it has for its mission also the maintenance of the dignity of the latter—the advancement of its interests, the promotion of harmony among its members, and so to shape its destinies that a position may be awarded it commensurate with the important destinies committed to its care. And this mission of the medical press is to be accomplished immediately and mainly through the journals it issues periodically.

The "Report of the Mortuary Committee" embraces brief biographical notices of three deceased members of the Ohio State Society, namely, of Washington Moorehead, of Zanesville, who died April 25, 1862, aged 55 years; of George J. Sachse, of Columbus, who died July 2, 1860, aged 60 years; and of E. L. Plympton, of Painesville, who died May 15, 1861, aged 61 years.

2. The subject of the inaugural address delivered by the president, Dr. THOMAS HUN, at the opening of the fifty-sixth annual session of the Medical Society of the State of New York, February 4, 1863, is "an inquiry into the degree and kind of influence which the progress of medical science during the present century has exerted over medical art." This is a question that opens before us a wide field of inquiry, every step we take in which is amid considerations of the deepest interest to every physician. How far the advance in physiology and pathology—in our acquaintance with the laws and movements of life during health, and disease—made during the nineteenth century have increased the exactness and certainty of medicine as an art, involves the whole question as to the actual extent of man's control over the march and issues of disease at the present day, compared with what it was sixty-three years ago. Has his therapeutic skill, with all the light shed upon it by recent discoveries in the medical sciences, enabled him to reduce materially the amount of mortality by reducing the number of incurable diseases, or to diminish the extent of suffering resulting from those affections of which the termination is not necessarily fatal, by shortening their duration? These questions are very ably discussed by Dr. H. His address may be read with profit by every medical man, and if it shall be found to discourage the belief that we have the power to cut short—that is, in the popular sense of the words, to cure disease—it will strengthen him in his confidence in the constant increase of the means at his disposal to extend the duration of life, to guard the human organism from disease, to alleviate pain, and to conduct disease, when it does occur, to a favourable termination.

The first of the scientific papers, in these *Transactions*, is an abstract of a valuable and able report made by Dr. CHARLES A. LEE "on Hospital Construction, with notices of Foreign Medical Hospitals." Important as is the subject discussed in this report, and valuable as are the expositions and elucidations presented by Dr. Lee in respect to it, we are under the necessity, at present, of passing them by with the simple remark that the prominent points to be secured in respect to the location, plan, and construction of a military hospital—indeed of every hospital, are purity of atmosphere within and

without; abundance of pure air and light within the wards—a comfortable amount of coolness in summer, and of warmth in winter; the strictest cleanliness throughout; full security against dampness, together with every possible facility of administration, classification, and discipline. The attainment of these ends involves the selection of a healthy and otherwise desirable site, where free ventilation and a full supply of pure soft water may at all times be secured—simplicity of plan and construction, a sufficient number and proper location of windows, a sufficient number of large, capacious, and judiciously arranged wards, the required number of offices, store-rooms, etc., with easy means of communication throughout the building. The grand principle to which everything else must be subservient being the recovery of the largest number of sick and wounded men to health and soundness in the shortest possible time.

For details we refer to the report itself, which is illustrated by several excellent diagrams of foreign hospitals, and of the plan suggested by the reporter for a regimental hospital for one hundred and twenty patients.

The next paper is “on the Mechanical Treatment of Pott’s Disease of the Spine,” by Dr. CHAS. FAYETTE TAYLOR, of New York. The author has endeavoured to show by the actual result of treatment, that the management of caries of the vertebræ upon indications strictly pathological, and by means, based upon such indications, of a purely mechanical nature, the usually protracted course of the disease may be greatly shortened, the constitutional disturbance attendant upon it diminished, and the unsightly deformity, and more or less of lameness, now its almost invariable result, wholly prevented. In short, that by proper mechanical means the great majority of cases of Pott’s disease, now so generally considered as incurable, may be actually cured, while in all cases the condition of the patient may be greatly improved.

The next paper is “on Medical Provisions for Railroads,” by Dr. E. S. F. ARNOLD, of Yonkers; being the sequel of an article presented to the Society, by the same gentleman, in 1862, and published in the *Transactions* of that year.

The need of some more effectual means than now exists for the saving of life, and prompt relief of suffering in the case of railroad casualties, has been very generally admitted by all who have paid even the slightest attention to the subject, both in and out of our profession. The object of the present paper is to enforce by additional illustrations and arguments, the feasibility and sufficiency of the plan suggested by its author, and the propriety of its enforcement by legislative enactments.

In the *Transactions* of the New York State Medical Society for 1862 a case is recorded by Dr. A. G. Purdy, of remarkable suppression of urine in a female, accompanied with a strange transformation to a black condition, as though covered with charcoal, of the skin of the patient’s face, left arm, and left leg, with the discharge by expectoration and from the vagina of particles like charcoal. The female, it appears, was brought to the city of New York for exhibition under the name of “the charcoal woman.” Whilst there she fell under the notice of Dr. Lewis A. Sayre, who having suspicions as to the character of the case succeeded finally in demonstrating that all the supposed wonderful phenomena of the case were either simulated or artificially produced. That the whole affair was a gross deception, and the woman and her exhibitors nothing more nor less than swindlers.

*De Lunatico Inquirendo* is the title of the next article. It is by Dr. JULIUS AUERBACH, of Queen’s County. The subject discussed is the deficiencies, errors, inconsistencies, and uncertainty which now exist in respect to that most important branch of medical jurisprudence, the establishment or refutation of alleged lunacy in any given case; and the manner in which the existing evils in respect to it may be remedied.

The sixth paper gives the description of “a New Operation for Artificial Hip-joint in Cases of Bony Ankylosis,” by Dr. LEWIS A. SAYRE, of the Bloomingdale Hospital. The operation described is based on that first performed by Dr. John Rhea Barton, of Philadelphia, to remedy a deformity of one of the lower extremities. The novelty consists in the removal not of a triangular portion of the shaft of the bone, so as to enable it to be brought into a position parallel with the femur of the opposite side, but with continued ankylosis, as was done in Drs.

Barton and Roger's cases, but in the removal of a semicircular portion of bone from the shaft of the ankylosed femur above the trochanter minor, so as to retain in the lower fragment, the insertion of the psoas magnus and iliacus internus muscles, for the purpose of flexion. The convex surface of the removed portion of bone is to present upwards, so as to allow the divided surfaces of the femur to simulate to some extent the natural joint, thus giving the patient a fair chance of a useful degree of motion in the limb, and lessening the danger of the parts slipping by each other in the act of walking. Dr. S. relates two cases in which the new plan of operation was put in practice. The first case was that of a male, 26 years old. The ankylosis and deformity had been of over ten years' standing. At the end of eight weeks subsequent to the operation, the patient was able to walk on crutches around the hospital, could sit down on and rise from a chair without other assistance than that furnished by his crutches. At the end of two months more he left New York for Kentucky.

"The night before he left," remarks Dr. S., "he walked to my office, and could go up and down the steps without any difficulty; could stand on either leg without either crutch or cane; could take a step, with either foot, of 27 inches; and when he supported his body on his crutches, could straddle his legs so that his heels were 36 inches apart. He could cross either leg over the other without assistance, but could not cross them upon the thigh."

In the commencement of January, 1863, he was doing well, the limb gaining strength constantly.

The second patient operated on was a female, 24 years of age. The ankylosis and lameness, attended with very great deformity, had been of about six years' standing. At the end of three months from the operation the patient was able to get out of bed, and in five months from that time began to have some control over the movements of the limb by voluntary action of the muscles, and could bear her whole weight upon it. The movements of the limb soon became nearly as perfect as those of a limb in its normal condition. She could walk around her room, the exercise conducing to the improvement of her general health, as well as to the development and education of muscles that had long remained inactive, when, unfortunately, by leaving off her flannels and exposure for some hours to the intense cold of February, 1863, she became attacked with pneumonia, which eventuated finally in her death. Upon a post-mortem examination, the limb operated on was ascertained to be an inch shorter than the other. It admitted of free passive motion in all directions without crepitation. The artificial joint was found to be provided with a complete capsular ligament, while the two articulating surfaces were tipped with cartilage, and covered with synovial membrane. Some spiculae of bone were found, either loose at the orifice of the external wound, or attached at one of their extremities by periosteum to the margin of the new head of the femur, all of which doubtless would soon have come away had the patient lived. The connection of the new articulating surfaces was secured by two round ligaments springing from the upper surface at two points some distance from each other, and converging so as to become attached very nearly at the same place to the lower surface, where they spread out like a fan.

The next article comprises a correspondence with, and report to the Surgeon-General U. S. A., and the Governor of New York, by Dr. JOHN SWINBURNE, of N. Y., including the writer's personal experience in the Peninsular campaign, with remarks on the resection of joints and conservative surgery generally. This article, especially the first portion of it, might have been far better arranged and greatly curtailed. Whatever is personal to Dr. S. should have been presented in the form of a concise narrative, with the substance only of the various pieces of correspondence now given in extenso. In this form it would have been better understood, and more likely to secure to Dr. S. that verdict from the profession which he desires, and to which he is, doubtless, justly entitled. The various items of personal experience acquired by him as an army surgeon, during a very active and varied campaign, are interesting, while his remarks in respect to resection in cases of injury implicating the joints of the upper extremities as a means of saving the limb, whenever the main arteries are unin-

jured, and the parts beyond the injured joint are possessed of full vitality, are well deserving of a careful study.

The eighth article is "on Fracture of the Cranium," by Dr. FREDERICK HYDE, of Courtlandville. It comprises an account of seventeen cases of fracture of the skull, of which in ten recovery ensued, one with impaired intellect, and in seven the patients died. In seven of the cases, besides the fracture, there was more or less extensive lesion of the membranes and substance of the brain.

In three of the cases in which there was depressed skull with well-marked symptoms of compression, elevation of the depressed bone not being practised, complete recovery ensued. Of four cases in which the depressed skull was elevated without trephining or ablation of bone, two recovered and two died. In one instance of the loss of a large fragment of bone, without compression, complete recovery followed.

Of five cases in which trephining was practised, three recovered, two died. Three cases, called fracture at the base of the cranium, were fatal. One case of fracture at the base of the cranium recovered.

Two cases with lesion of membranes and cerebral substance in which trephining was practised, terminated fatally; two cases of similar injury, without trephining, were fatal. Two cases of penetrating wound of the membranes and brain, without trephining, recovered; one similar case, with trephining, recovered.

The patients were all males between six and forty-five years old.

In the ensuing paper an interesting case of lithotomy is related by Dr. A. BAKER, of Norwich. It occurred in a man 58 years of age. There was stricture of the prostatic portion of the urethra, rendering the introduction of catheter or sound extremely difficult. By the usual operation a calculus weighing 4½ ounces was extracted from the bladder. No unfavourable symptom ensued. The recovery was in all respects favourable.

We have next the history of a case of "Resection of the Ankle-joint," by Dr. J. C. JOHNSON, of King's County. The operation was performed on a man about 45 years old, who had received an injury of the bones of the leg and tarsus at the ankle-joint, which, besides giving rise to a series of unpleasant symptoms, caused, finally, gangrene of the parts. After the operation the recovery was complete, with only shortening of the limb to the extent of three-quarters of an inch. The patient was able to walk with a slight degree of lameness—the limb being far more serviceable to him than could have been any artificial substitute.

The eleventh article is the history of a curious "case of Hyperostosis of the Lower Extremities," by Dr. T. C. FINNELL, of New York. The patient, 27 years of age, died Sept. 20th, 1861, after a few hours' illness, the result of intemperance. When he died he was five feet six inches in height. All the bones of the lower extremities presented the appearance of extensive hyperostosis. Every other part of the bony skeleton was in a normal condition. The weight of the bones of the right lower extremity was six pounds; of the left five pounds; together eleven pounds. The lower extremities of an articulated skeleton weigh only three pounds and a half. It would be very difficult to describe intelligibly the changes in the ankylosed and hypertrophied bones.

Next follows an account of "Post-pharyngeal Abscess" based on the history of three cases of the disease, by Dr. H. S. DOWNS, of New York City. Although over two centuries have elapsed since the first case of abscess behind the pharynx was recorded—the occurrence of such abscess is at the present day scarcely recognized as a distinct disease by our medical writers. The causes of this abscess would seem to be the same as those which give rise to abscess in other localities. It is either acute or chronic. In its first stage the symptoms differ little from those of other inflammatory affections of the throat. When, however, suppuration has taken place dysphagia sets in, and as the swelling augments and encroaches upon the larynx, dyspnoea supervenes. Dr. D. believes that the disease is of more frequent occurrence than is generally suspected. He is satisfied that in children it is often confounded with disease of the larynx and trachea, while in adults, it has been mistaken for stricture of the œsophagus. If, however, the physician bears in mind the fact of the occasional occurrence of abscess behind the pharynx, and the leading symptoms

to which it gives rise, he will scarcely fail to detect its presence, and by giving a timely discharge to the matter to avert the danger to his patient's life.

For further information on this important subject Dr. D. refers to an able article by Dr. M. Charles Allen, on retro-pharyngeal abscess, which appeared in the *New York Journal of Medicine*, vol. vii., new series, page 307. In this paper will be found a notice of fifty-eight cases of the disease, being all found upon record up to that date. Of these thirty proved fatal, chiefly from asphyxia. The majority of the cases occurred in children under ten years of age. It was met with, however, in the adult of sixty years, and in the infant within the first month of its existence.

Article XIII. is on "Deformity of the Feet and their treatment by Plaster of Paris," by Dr. D. C. ENOS, of Brooklyn. The plan of treatment proposed by Dr. E. is, after the manual reduction of the deformity, with the aid of tenotomy, if necessary, to inclose the parts in a mould formed of strips of muslin smeared with plaster of Paris, which is to be kept on with occasional changes until such time as all danger of a recurrence of the deformity is past. The paper of Dr. E. is replete with interest, and well worth a careful perusal.

A case of "Morbid Growth" attended with the characteristic symptoms of cancerous cachexia, is related by Dr. N. NIVISON. This case occurred in a lad thirteen years of age. There was, at first, violent abdominal pain, with a tumour of the size apparently of an orange, seated just within the crest of the right ileum. The tumour was slightly movable, obscurely tender, and of a heavy, firm, elastic feel. The patient was short in stature, and greatly emaciated, with pale, sallow complexion. His sclerótica had the pearly whiteness and the prolapsus the bloodless hue of the most exaggerated form of anæmia. The paternal grandmother had died of cancer, and the father's sister had suffered amputation for the removal of malignant disease. The tumour constantly increased in size, rising at length to a level with, and to the right of the umbilicus, apparently in contact with the anterior parietes of the abdomen. The general health of the patient failed rapidly, he lost entirely his appetite, was extremely restless, and had considerable fever. There was constant pain in the vicinity of the tumour, usually dull, but occasionally lancinating. The tumour became at length firmly attached to the abdominal parietes, which became gradually thinner as the tumour approached the surface, in its constant enlargement. Like a true malignant tumour, it assimilated with its own texture all the adjacent tissues. Ulceration finally occurred at its central portion, and soon also at other points. As the skin covering the tumour gave way, it was replaced by a luxuriant formation of fungus granulations, projecting some half inch or more above the level of the surrounding skin. The discharge was scanty, thin, and ichorous. After several months, constantly assuming a more formidable character, the disease assumed a more favourable aspect. The tumour became gradually less in size, the ulcerations healed, the patient improved in health and flesh; to all appearance, a complete cure ensued; and this solely under the influence of a tonic and restorative treatment. The case certainly presents points, as Dr. N. remarks, of more than ordinary interest.

Article XV. Description of Professor Nelaton's recently invented "Probe for exploring Gunshot Wounds in Bone," when the lodgment of a ball is suspected, as in the case of Garibaldi, by Dr. ALDEN MARCH, of Albany. This probe is now too well known to require a description.

The next article is on a "New Plan of Treating Fracture of the Lower Jaw," by A. L. SAND, of New York City. The fracture being reduced, is to be secured by passing a ligature tightly around the teeth at the seat of fracture; an impression in wax is then to be taken of all the teeth of the lower jaw; from this a plaster mould is to be made on which an India-rubber splint is to be cast, and then vulcanized. This splint is to be applied and fastened by screws passing each into one of the molar teeth on either side. The advantages of this apparatus are the great comfort the patient enjoys under its use, allowing him to take soft food, and drinks; permitting him to talk with ease, and at the same time securing perfect immobility of the fracture by which a speedy union is promoted. Dr. S. thinks this splint is applicable to all fractures of the lower jaw. If the fracture is in the anterior part of the jaw no bandage is necessary, but if poste-

rior to the first molar tooth a bandage will be required, there not being sufficient support afforded to the splint for the control of the fracture by one or two teeth; it would be used in such case only to assist in steadying the jaw. It overcomes all irregularities from loss of teeth or abnormal conformation, affording by indentation made upon its inner surface by the teeth also of the upper jaw, a firm bed to be bound up against it so as to keep the fractured portion of the jaw in its place. Under such circumstances, an opening can be left in front for the introduction of food.

The article next in order is the history of a case of "Prolapsus Uteri" of fifteen years' standing, with extensive ulceration and hypertrophy of the neck, in which a cure was effected by reposition alone. The case is related by Dr. I. E. TAYLOR, of New York City. The chief points of interest in this case are the length of time the uterus had been in a state of procidentia, with no attempt to reduce it; the large hypertrophy and extent of ulceration of its neck; its retaining its position after replacement; the entire and perfect removal of the ulceration in less than three weeks after reposition, with the reduction of the hypertrophy without an operation.

Article XVIII., by Dr. W. GILFILLAN, is on "Tracheotomy in Diphtheria," with a case, in which the saving of the patient was attributed to the operation. Dr. G. believes that, in all cases of diphtheria, where the patient's strength is good, and the general symptoms pressing—that is, if there is great difficulty of respiration—stridor—slight lividity of countenance—and considerable sinking in of the parietes of the chest in inspiration, tracheotomy promptly performed affords the best, if not the only chance of recovery. Under such circumstances the earlier it is resorted to the better. It is to be kept in mind, however, that the operation can do nothing more than allow a free entrance of air into the lungs—hence, if the patient is sinking from asthenia or from the toxic effects of the disease, tracheotomy will be useless, if not injurious.

"Cases of Ovarian Dropsy, treated by Iodine Injections," is the subject of the next paper. It is from the pen of Dr. D. G. THOMAS, of Utica. Two cases of ovarian dropsy are reported as having been cured by this treatment.

The next paper, by Dr. A. K. GARDNER, of New York City, is on "Ovarian Disease and Ovariectomy." Dr. G. gives the detailed report of a case of ovariectomy with fatal termination. It was a case of more than ordinary complication, and is replete with practical interest. To the case is subjoined a brief review of the subject of ovariectomy, with the author's deductions based upon an attentive study of the views of others and personal observations.

The next paper is on "Diphtheria," by A. L. SAUNDERS, of Brookfield. A very concise, but, upon the whole, accurate résumé of the leading facts known in respect to the symptomatology, course, complications, and sequelæ of the disease, with a brief notice of the author's experience in respect to its treatment. The paper presents no new facts or views, nor is there anything particularly striking in the manner in which the facts it comprises are presented.

The subject of Art. XXI. is a report on "Gangrene of the Mouth and Fauces," observed at the U. S. General Hospital, New Orleans, by RUFUS K. BROWN, Surgeon in Charge. It would require more space than we can properly claim to present a satisfactory analysis of this report, which, by the by, is neither very clear in its exposition of the subject it discusses, nor very perspicuous in its arrangement.

An interesting paper follows on "Pelvic Presentation, its Philosophy and Treatment," by Dr. J. V. P. QUACKENBUSH, of Albany. The author insists that the presentation of the breech is natural, and consequently that under all normal conditions nature is fully able to effect, without assistance, the delivery of the child so presenting. He maintains that the accoucheur is in no case to interfere during the first stage of the labour unless the life of the mother is in danger. That all interference is to be abstained from until the os uteri is fully dilated. He considers it to be an erroneous idea that the child acts the part of a wedge in the dilatation of the os uteri; the process is accomplished when the side of the child presents. The object of non-interference is to prevent, as much as possible, pressure of the body of the child, by allowing the os uteri to

become completely dilated, and at the same time to allow the head to become fully flexed, and in consequence present its smallest diameter at the superior strait, a matter of vital importance to the child. Dr. Q. forbids the use of all tractive force; the delivery to be intrusted entirely to the expulsive force of the uterus. It matters not which end of the ovoid body presents, whether the vertex or the pelvic, the uterus has an office to perform, that is, to effect the forced flexion of the child's head, and this function cannot be interfered with with impunity. That this effect be properly performed, and this is essential to the safe delivery of the infant, the pressure must be from above; acting in this direction, while it forces the child downwards, it compresses it upon itself, and thus flexes the head upon the chest. Should any tractive power be used, the very reverse occurs, the head becoming extended, causing in most cases the death of the child. Again, if traction be resorted to, one of its lower limbs will necessarily be brought down, and the case converted into the so-called footling presentation, in which, as is well known, the danger to the life of the child is greatly increased. Traction, it is true, may be made by the blunt hook passed over the groin. In these cases it is to be recollected, however, that the blunt hook is a dangerous weapon, and few will be satisfied with their experience in its use. Another reason given by Dr. Q. for not drawing down a limb of the child is this: The fetal limbs are not doubled beneath the body as those of a tailor at work, but are placed longitudinally on the anterior plane of the body, with the cord lying between them, and thus guarded from pressure during the passage of a large portion of the body through the uterine orifice, even in cases where the membranes have been prematurely ruptured. Finally, the use of traction causes mischief by hurrying the descent of the child before the parts have become adapted for its ready passage. The entire paper of Dr. Q., of which we have given merely the more important heads, is a most able and instructive one.

A "case of Delirium Tremens" is related by Dr. S. BARRETT, of Le Roy (Art. XXIV.). In this case, half an ounce of tincture of digitalis, of the official strength, was given every sixth hour, until three doses were taken, and then every eight hours until four more were taken. At the end of forty-eight hours the patient's pulse and sleep had become nearly normal. From this time he convalesced rapidly; all kinds of medicine were withheld. There was not the least prostration of the system, neither was the renal secretion perceptibly affected. The recovery of the patient was even more perfect than it had been previously from an ordinary debauch.

Article XXV. A "case of Insanity," by Dr. GEORGE COOK, of Brigham Hall. The case presents nothing of an especially interesting or instructive character.

Article XXVI. "Cases of Smallpox and Varioloid," by Dr. H. CORLISS, of Greenwich.

An interesting paper follows, on "the Statistics of some of the Diseases of New York and London," by Dr. CYRUS RAMSAY, Registrar of Records and Statistics, city of New York. To this paper is appended a table of the annual number of deaths by consumption, compared with the population, in every State in the Union; the number of deaths in the two sexes in each State, and the ratio to the population. From this table it appears that the greatest number of deaths from consumption, in comparison with the population, occurs in Massachusetts, Maine, New Hampshire, and Rhode Island, and the least in Georgia, South Carolina, Alabama, and Florida. The very great number of deaths from consumption in males in the State of Louisiana—547 to 296 females—is worthy of notice. The highest ratio of deaths from consumption occurs in Massachusetts; namely, 1 in every 254 of the population. The lowest is in Oregon; 1 in every 2,498 of the population. The ratio in Pennsylvania is 1 in 579 of the population; in New York 1 in 472; and in Louisiana 1 in 839.

The remaining articles comprised in the present volume of *Transactions* are for the most part of a strictly local character, and do not call for any particular notice.

Obituary notices are given of Dr. Zenas Cary, of Troy, who died May 11, 1862, aged 75 years; of William S. Norton, who died February 20, 1863, aged 67 years; and of Bartow White, who died February 10, 1863, aged 86 years.

3. In our notice of the *Transactions* for 1863 of the Pennsylvania State Medical Society, passing by the very sensible and piquant address prepared by the president, Dr. G. F. NORRIS, of Bradford County, but which he was prevented by sickness from delivering, we shall endeavour to present a brief abstract of the sanitary condition of the State, so far as this can be learned from the reports received from the county societies that were represented, and of such observations as these furnish in respect to the etiology, pathology, and treatment of the more prominent diseases which prevailed in the different sections of the State during 1862 and the spring of 1863.

*Pneumonia, pleurisy, bronchitis*, and other acute affections of the chest were noticed throughout every portion of the State during the winter of '62 and the spring of '63, and were the cause of much mortality. In Little Beaver Valley these diseases prevailed to such an extent as to amount to almost an epidemic. Simple pneumonia was met with mostly in those whose constitutions were broken down by age and the cares of life. Pleuro-pneumonia prevailed among the healthy and robust of middle age, while broncho-pneumonia was confined almost exclusively to infants and children. In Dr. DUTCHER'S practice, nearly every infant born during February and March was attacked on the ninth day after birth; when properly treated, the attack terminated by the seventeenth day. In that form of pneumonia which has been denominated *typhoid*, in addition to the ordinary symptoms of disease, there was great prostration; low muttering delirium; scanty, turbid, ammoniacal urine; frequent and copious stools, with marked sibilant rhonchi. Such cases were generally fatal; when not so, recovery was slow and tedious.

*Pneumonia* and *pleurisy* prevailed epidemically during the winter of '62 and spring of '63 in a portion of Perry County. The cases were of so sthenic a character as to require an active antiphlogistic treatment. Dr. Stites, of Millerstown, bled, cupped, blistered, and gave calomel, according as each case seemed to demand, and with the best results.

*Diphtheria* is noticed as having prevailed, to a greater or less extent, in all the counties from which reports were received. In parts of Beaver County its prevalence was the greatest during the latter part of autumn and beginning of winter. In some localities it constituted almost an epidemic. It was particularly fatal among children. In Bradford County its chief prevalence was during the summer and autumn. It was found to be more severe on the mountains and highlands than in the valleys and along the streams. Its most frequent sequela was partial paralysis. Dr. Evans, of Hatborough, Montgomery County, observes that in some of his cases, about three weeks after the disappearance of the throat symptoms, the respiratory organs were paralyzed to such an extent as to cause congestion of the lungs, which threatened the life of the patient. In Bucks County diphtheria prevailed to an alarming extent; in many families it proved fatal, within a short space of time, to four or five of the children. In parts of Westmoreland County, and the counties adjoining, the disease is reported to have prevailed more extensively and was attended with a greater amount of mortality than any other epidemic which had before visited those sections of country. It spared neither age, sex, nor condition. Its greatest number of victims, however, was among those between two and six years of age. The disease was preceded and followed by a great number of cases of pharyngitis and erysipelas of the throat.

In respect to the treatment of diphtheria, all the reports agree in considering it a blood disease attended with more or less decided adynamia; the exudation being a strictly local phenomenon dependent upon the general morbid condition of the system. There is, consequently, a general agreement as to the propriety of tonic, stimulating and sustaining remedies, quinia, chlorinated water, chloride of potass and soda, tinct. of muriate of iron, good diet, etc. Local applications to the throat, excepting so far as is necessary to free it from diseased deposits, being of secondary importance.

In the report from Beaver County, it is stated that very little reliance is now placed upon local treatment. The application of nitrate of silver to the throat, so common on the first appearance of the disease is now almost entirely abandoned. Experience having shown that it is not only useless in the great majo-



riety of cases, but frequently positively injurious. The muriated tincture of iron, slightly diluted with water, is now regarded as the better local application. It is applied to the throat with a sponge probang, every three or four hours, until the membranous deposit is entirely removed. The application of nitrate of silver to the throat in diphtheria is going out of use, also, among the physicians of Bradford County, especially when the disease occurs in young children. We would direct attention to the very sensible remarks of Dr. Poley, of Norristown, contained in the report from Montgomery County, on the treatment of the disease. In the report from Philadelphia County will be found a very zealous defence of the propriety, if not absolute necessity, of the free and early application of the nitrate of silver to the fauces in diphtheria, by Dr. Nebinger. The remarks by Dr. Stevenson, given in the Westmoreland report, on the treatment of the disease, will amply repay the time devoted to their careful study.

*Typhoid fever* has prevailed more or less extensively during 1862 and the spring of 1863 throughout Pennsylvania. It would appear to have entirely usurped the place of the remittent and intermittent forms of fever even in the most noted miasmatic districts. In Perry County a peculiarity occurred in the locality of the disease. The first case seen by Dr. Stites was on top of a mountainous ridge running east and west from the Juniata River to the Susquehanna, on the first of September, 1862. From this point the disease spread in a diagonal course, from northwest to southeast across Wild Cat Valley, to the distance of about five miles, and in width about one-quarter of a mile. Along this course, with a single exception, every house had all of its inmates affected with the fever. Every individual in the region, with the exception of the one family alluded to, between 10 and 50 years of age were attacked. The epidemic, in the course of about five weeks, passed over one corner of the little village of Liberty Hall, and attacked almost every one living on the eastern side of the street, while not a single case occurred on the opposite side. Of all the numerous buildings situate near, but not within the exact range indicated, every one escaped the fever.

*Measles* is mentioned as having prevailed more or less in different sections of the State, as in Bradford County, in Perry County, where it was of a severe form, in Philadelphia County, where it prevailed extensively, as it did also in Westmoreland and the surrounding counties. In many instances it is noted in more than one of the reports that those who were attacked with the disease during the years 1862-63, had suffered from it at some former period. In the report from Philadelphia County will be found some judicious and highly instructive remarks by Dr. Corse, on the more frequent of the complications of measles and their treatment.

*Scarlatina* to some extent has visited, during the two past years, a large portion of the State of Pennsylvania. Though in general the cases in each locality were few in number and mild in character, in some neighbourhoods they were numerous and more or less malignant. Thus, in parts of Montgomery County the disease prevailed epidemically during the summer of 1862, and the months of January to June inclusive of 1863, producing a considerable amount of mortality. In Westmoreland County it prevailed in conjunction with diphtheria. In the report of the Montgomery Medical Society will be found some judicious remarks on the treatment of scarlatina.

*Smallpox* prevailed to some extent throughout the greater portion of Pennsylvania. In Bradford, however, only six cases occurred.

*Vaccination*, both primary and secondary, appears to have been very extensively and successfully practised throughout the State. To this is attributed, by several of the reports, the diminished prevalence of smallpox for months preceding the meeting of the State Society.

Dr. Moody, of Bradford County, relates a number of cases occurring at Ridgebury, near the State of New York, in which phlegmonous erysipelas of the arm made its appearance after vaccination. The patients had been vaccinated in the usual manner, with matter supposed to be good. Soon after the matter was inserted the arm became painful; from the puncture a thin watery discharge took place, which quickly assumed a sanious character; the limb became very much swollen. The patient's appetite failed, and he rapidly sank into a typhoid condition. In

a few days, the skin and cellular membrane of the affected arm sloughed, in several instances, from the elbow to the shoulder, denuding completely the muscles. Diphtheria was prevailing at the same time in and around the neighbourhood. In several instances, after the sloughing of the integuments, a membrane formed upon the denuded parts, having a decided diphtheritic character. In no case was there any affection of the throat. Death occurred in many cases, and in all that recovered convalescence was slow. The disease proved most malignant upon high hills, always considered very healthy. These erysipelatous attacks were not confined to the patients vaccinated by a single physician, but they occurred also in patients vaccinated by other physicians, and in a locality north of those seen by Dr. Moody. The latter were the most severe.

A curious anomaly connected with vaccination is described by Dr. Stites, in the report from Perry County, as having occurred in his vicinity, during the warmer months of the year 1862. The vesicle on the arm assumed an unhealthy appearance, and often an eruption made its appearance over the entire body. Fresh virus was used, but with the same result. These results of vaccination were not confined to Dr. S.'s practice, but they occurred in that of nearly all the neighbouring physicians. Dr. S. heard of two or three deaths having taken place in such cases.

The prevalence of *hooping-cough* is mentioned in nearly all the counties from which reports were received. In Westmoreland it prevailed epidemically. It does not appear to have been a very fatal disease excepting in cases complicated with bronchitis, pneumonia, or diarrhoea.

*Diarrhoea and dysentery prevailed throughout every part of Pennsylvania.* In some parts, however, to a very slight extent, and in none were the cases very severe or unmanageable. In the report from Philadelphia County Dr. Lamb describes a very troublesome form of diarrhoea which prevailed to some extent in some of the extreme northern wards of the City of Philadelphia, and was attributed very generally to the bad condition of the water supplied to the inhabitants of those wards for domestic purposes.

*Spotted fever.*—Dr. Reid, of Conshohocken, Montgomery County, reports ten cases of a peculiar disease which had prevailed in his vicinity since the 11th of March, 1863. The disease was known as spotted fever. Dr. Reid believes it to have been the same disease as that described by Dr. Condie (*on Diseases of Children*) as cerebro-spinal meningitis. None of the cases seen by Dr. R. were in patients over 14 years of age, the youngest was 16 months old. Five of the cases occurred in boys and five in females. Seven had petechiae, mostly numerous and distinct; there was none in three cases. An exanthematous eruption appeared for a short time in some of the cases. In all the muscles of the neck and back were in a state of tetanic contraction. In most cases there was partial deafness, with stiffness and soreness of the limbs, which were painful when touched; in some cases there was persistent vomiting, also delirium, great loquacity, for a time strabismus, followed by injection of conjunctiva, or alternate dilatation and contraction of the pupils. Seven of Dr. R.'s cases died, some after a few hours, others after several weeks' illness. The treatment pursued by him consisted in the administration of tonics, counter irritants, and a nourishing diet, with anodynes to relieve pain.

Dr. Corson, of Norristown, Montgomery County, had attended thirty well defined cases of spotted fever, fourteen of which died, of ages varying from 6 months to 45 years. The first case occurred February 17, 1863—five children were attacked in the same family; all of them died. After referring to North's paper on spotted fever (*Med. Repos.* 1812), Dr. Corson remarks that the disease there described quite fairly represents the disease seen by him. There are, says Dr. C., certain symptoms which are clearly pathognomonic, and almost always concur in decided cases. If the patient is conscious he complains of unusual languor, often preceding by only a very short interval the culmination of the attack in severe pain of the head, extending along the spine to the extremities, associated with severe and painful vomiting, and followed quickly by a sense of debility, threatening a speedy and fatal collapse.

*Scrofula and tuberculosis* would appear, from the reports before us, to prevail in every county of the State. In the report from Philadelphia County will

be found some extended remarks as to the identity of the two affections and in respect to the etiology and treatment of tuberculosis of the lungs.

*Croup* is a common disease in the interior of Pennsylvania. It occurs sporadically, more especially during the cold and variable seasons of the year. We have no account in any of the county reports of its having appeared as an epidemic. Dr. Mateer, in the report from Perry County, extols highly the following prescription as a remedy in croup: one drachm of the root of *sanguinaria Canadensis*, to be macerated for two hours in good vinegar and water,  $\frac{3}{4}$  half a pint, then strained, and a sufficiency of white sugar added to form into a syrup—dose, a teaspoonful every ten minutes, until three or four doses have been taken, when an emetic is to be given. The syrup will dissolve the pseudo membrane, we are assured, when, by the emetic, it will be readily discharged, with prompt relief to the patient.

Under the head of "*Midwifery in the Country*," Dr. H. Corson presents, at the close of the report from Montgomery County, a most interesting record of 2,387 cases of consecutive labours. Beside the interest which attaches itself to the mere statistics of so large a number of cases from a reliable source, the practical remarks and comments generally by which the statistics of Dr. C. are accompanied, are replete with most valuable instruction and suggestive hints. The space, however, which we have already occupied, admonishes us of the necessity of confining ourselves, much against our inclination, in our notice of Dr. C.'s record, simply to the statistics which it embodies.

Of the 2387 cases of labour to which the statistics before us refer, 39 were *twin* cases, making the entire number of the children born, 2426; of these 1323 were males, and 1106 females.

The number of births according to months was as follows: January, 190; February, 227; March, 221; April, 170; May, 183; June, 199; July, 213; August, 207; September, 211; October, 180; November, 203; December, 222. Thus the greatest number occurred in February, the smallest in April. According to seasons, the largest number of births, viz., 639, took place in winter; the next greatest number, viz., 619, in summer; the next, viz., 594, in autumn; while the fewest number, viz., 574, occurred in the spring.

*Presentations*.—Of the *head*, there were 2367; of the *pelvic extremity* (breech, knees, feet), 46 cases; of the *face*, 9; of the *shoulder and arm*, 4. Thus, pelvic presentations occurred but once in 52 cases. Twenty-two of the pelvic presentations were observed in twin cases, making only one per cent. in single births.

*Twins*.—Of these 35 were males and 33 females; of these 68, 56 presented the head, and 22 the pelvis.

*Bloody infiltration of the labia pudendi* was met with only twice—once in a twin case.

*Stillborn children*.—Seventy-two of the children, or about 3 per cent., were born dead. Many, it was evident, had been dead several days. Of those which died during delivery, in some death took place after turning, or in pelvic presentations from delay in the extraction of the head; from compression, with or without prolapsus of the cord; after the use of ergot; in forceps cases; from unavoidable hemorrhage; from convulsions in the mother; from watery discharge from the vagina; from causes producing premature labour; others from causes unknown.

*Hour-glass contraction and adherent placenta* were very rarely observed.

*Unavoidable hemorrhage* occurred in only three cases. In one the placenta being removed, the child was readily delivered by the forceps. In the other two, after weeks and even months of floodings, the children were finally delivered by turning. All the children were dead born.

There were nine cases of *puerperal convulsions*.—Preceding labour, 4; during labour, 3; subsequent to labour, 2.

*Deformity* was present in seven of the children. In consisted in harelip in one; imperforate anus in two; spina bifida in one; acephalous child, one; a single eye in one case. There were several "weak ankles," but not a case of club-foot; a few cases of imperforate penis, which were readily relieved; some double thumbs, and fingers in excess.

The *forceps* were used for full delivery in 28 cases. Dr. C. thinks that he

ought to have used them in a few other cases, and he is certain that he could have dispensed with them in some of the cases in which they were used. In difficult labours he would always, however, prefer their use to that of ergot.

*Ergot* was given in 139 cases; often, Dr. C. remarks, with perfect satisfaction to himself, and great relief to the patients; still, he considers its use in many cases to be attended with much damage. Latterly he seldom resorts to it.

The *earliest birth* occurred in an unmarried girl of 14 years, 8 months, and 12 days; another nearly similar instance in the daughter of a highly respectable family, who was privately married just before her confinement. There were several births in girls under 16 years of age. In every instance conception had taken place before marriage.

*Illegitimates*.—Of the 2446 children born, 35 were illegitimate.

*Deaths in childbed*.—The statistics of Dr. C. comprise nine such deaths, namely; one from convulsions; one after a tedious labour in which embryulcia was performed; one in a patient showing symptoms of uremia; three from puerperal fever; one from metritis; one from disease of the brain in a patient insane before confinement, and one from cause unknown.

There is much contained in *Transactions of the Pennsylvania Society* of a deeply interesting character, that we have been obliged to pass by unnoticed. We should have been pleased, had we the room, to have noticed one or two items of a surgical character. Biographical sketches of several recently deceased citizens of the State are appended to the report.

4. The "salutatory address of the President," Dr. JAS. F. HIBBERD, of Richmond, Indiana, delivered on the opening of the Thirteenth Annual Session of the Indiana State Medical Society, is replete with good sense and sound practical views. Its subject is, the necessity of the study of the human subject, whether in his individuality or in his associations, domestic, social, or political; in his psychical as well as in his material nature; in the several phases of his normal and abnormal existence on the part of the physician to perfect him in his office of conservator of human health; to enable him more successfully to shield the human being from the influence of all that is calculated to destroy the normal condition of his organism; to remove more effectually everything whose presence may have a tendency to disturb the full, regular, and harmonious play of his several organs in the performance of their respective functions. The subject is one by far too comprehensive, and involves questions of far too profound a character to allow of their being successfully discussed in a public address of any reasonable length. Hence, notwithstanding Dr. H.'s address occupies twenty pages of the present volume of *Transactions*, the author has rather enumerated than enforced and illustrated the entire line of study calculated to render the physician "a faithful sentinel over the ways which lead unto disease and death."

The first professional paper, occupying six pages of the *Transactions*, is on "Cinchona and the Extracts from it," by Dr. WM. P. HARVEY, of Plainfield, Indiana. After a very brief consideration of the therapeutical properties of the cinchona bark in substance, and of its several alkaloids, and the applicability of each of these to special forms, and conditions, and stages of disease, and for the fulfilment of special indications, based upon the recorded experience of distinguished practitioners, Dr. H. concludes that they all possess a tonic power, but only to a certain extent. That with their tonic property there are conjoined other properties. Thus, the alkaloids of cinchonia, especially quinia, to which no one can deny the title of tonic, exhibit, besides, all the properties of a nervine, and to a very decided extent. Given in large doses it is, also, positively sedative. There is, certainly, no article in the entire list of materia medica, with the exception, perhaps, of opium, which, as a therapeutic agent, has a more extended range of applicability than cinchonia and its alkaloids. The latter, especially, are capable of producing a more decidedly beneficial influence in many of the forms and stages of even inflammatory disease than has heretofore been acknowledged.

The next paper is a report by Dr. J. B. HARVEY, of Plainfield, Indiana, "on

Puerperal Eclampsia." Of this report, which fills eight pages of the *Transactions*, we can give only the general conclusions of the author. Which are—

That uremia is the cause of about 90 per cent. of all convulsions of pregnancy. That coma, in cases of eclampsia, is more frequently the result of serous infiltration and uremia than of congestion of the brain. That, in a large percentage of cases of eclampsia, blood-letting is not admissible; on the contrary, it has a tendency to increase the violence of the disease and diminish the chance of recovery. That chloroform is admissible in all cases, and in nearly all beneficial. That hydragogue cathartics are more uniformly productive of permanent good results than any one other remedy. That the employment of opium and its preparations is often attended by the happiest effects. That, in uremia, threatening eclampsia, and not relieved by treatment, or when the fœtus is dead, premature labour should be induced. That whenever the pregnant female is affected with albuminous urine she should be under the constant and special care of the physician.

The volume of *Transactions* for the session of 1863, closes with a communication on "Camp Diarrhœa," as observed among the Indiana troops in the Army of the Southwest, during the spring of 1863, by Dr. Brewer. Unlike the ordinary forms of diarrhœa observed among soldiers in camp, does not appear to be so generally the effect of errors in diet, but depends rather upon a peculiar morbid condition of atmosphere, generated by the action of the sun upon accumulations of animal matter and human excreta in a state of decomposition, aided, no doubt, in many instances, by unwholesome diet, and the want of due attention to the condition of the skin.

The post-mortem examinations of Drs. Comingore, Casselberry, and Taylor, fully prove that the disease has its location mainly in the epithelial, mucous, and submucous tissues of the lower intestines; it is evident, therefore, that to these parts, mainly, our remedial efforts should be directed. The testimony of all who have had large experience in the treatment of camp diarrhœa is in favour of the good effects of sedative enemata or suppositories. An enema of 4 oz. cold water,  $\frac{1}{4}$  to 1 gr. argent. nitrat., and 25 minims tincture of opium, was used by Dr. B., and as he states with instant relief to the patient. He repeated it once or twice in the 24 hours. The use, internally, of nitric acid with camphor water and tr. of opium, or the well-known Hope's mixture, was, in the hands of Dr. B., always followed by prompt and decided benefit; the evacuations becoming less frequent and more consistent, the tongue moist and clean, the abdominal tenderness less, while at the same time the appetite improved. In the chronic stage of the disease, especially when partial paralysis of the lower extremities has occurred, Dr. B. found that small doses of strychnia had an excellent effect. He gave it in the form of solution, made by adding 12 grs. strychnia to 12 oz. diluted alcohol, and 60 minims acetic acid. Of this from 10 to 30 drops were given three times a day, in a mixture of equal parts tinct. cinchon. comp. and syr. zingiber. The minimum dose, 10 grs., was commenced with, and very gradually increased until slight muscular twitchings were observed, when it was discontinued for a day or two and then resumed. A liberal use of acid fruits, for which there appears to be an instinctive craving, was, according to Dr. B., always productive of good effects. These, with plenty of pickles, saur-kraut, and similar vegetable diet, would promptly effect, we are told, a marked improvement in the health of the troops, and to them may, in great measure, be attributed the healthier condition of the army.

D. F. C.

ART. XX.—*Reports of American Hospitals for the Insane* :—

1. *Of the Pennsylvania Hospital for the Insane, for the year 1862.*
2. *Of the State Hospital of Pennsylvania, for the year 1862.*
3. *Of the Western Pennsylvania Hospital, for the year 1862.*
4. *Of the Mount Hope Institution, for the year 1862.*
5. *Of the Kentucky Eastern Asylum, for the year 1862.*
6. *Of the Michigan Asylum, for the two years 1861, 1862.*
7. *Of the King's County (N. Y.) Asylum, for the fiscal year 1862-63.*
8. *Of the New York City Asylum, for the year 1861.*

1. It will be recollected that at the *Pennsylvania Hospital for the Insane*, the experiment of treating the sexes in separate, but, as the Germans call them, "relatively connected" establishments, is under trial. In his report for 1862, Dr. Kirkbride says :—

"The system which was adopted at the opening of the new building has been continued without essential variation, and has realized our anticipations. Another year's experience only adds to the strength of my convictions of the great value and decided advantages of our new arrangements."

	Men.	Women.	Total.
Patients in hospital January 1st . . . . .	128	127	255
Admitted in course of the year . . . . .	104	90	194
Whole number . . . . .	232	217	449
Discharged, including deaths . . . . .	89	75	164
Remaining, December 31st . . . . .	143	142	285
Of those discharged, there were cured . . . . .	50	40	90
Died . . . . .	10	3	13

Died from acute mania, 3; chronic mania, 3; paralysis, 2; softening of the brain, epilepsy, old age, disease of the heart, and typhoid fever, 1 each.

From an elaborate discussion of the causes and the deleterious consequences of premature removals of patients from the hospital, we select the following extracts as the most important to be placed before the profession :—

"It cannot be too strongly impressed on every one, that a steady perseverance in treatment in every case of insanity is of incalculable importance. Too much care cannot be exercised in the primary decision to submit a case to hospital treatment, nor in learning where the best and most enlightened can be had, but these points being satisfactorily settled, then let no temporary discouragement, no suggestions of officious friends, no histories of wonderful recoveries by marvellous appliances, nor importunities from the patients themselves, lead to the suspension of a course deliberately adopted, till after a fair and full trial. It is not easy to indicate exactly how long a period of treatment should be insisted on, because the character of cases vary so greatly, but it is quite safe to say that although so many do regain their health within three months, no one should ever become discouraged in a recent case, without at least a year's trial. Many of the best and most permanent recoveries are after this period, and our statistics prove the proportion of restorations to the whole number of cases, to be so large, that favourable results may reasonably be anticipated, where early treatment has not been neglected.

"It becomes the officers of Hospitals for the Insane steadily to impress on the friends of patients, and themselves to remember, how difficult it is to say that any one is absolutely incurable. Every case, no matter what its character or duration, should be placed under the circumstances believed to be most favourable to secure a restoration, and should be steadily kept there. If the patients do not then recover, they will probably improve, and at any rate will not become worse from lack of proper care and treatment. It is behind the age at this day to speak of institutions for incurables. If there were no other objections to them—and there are many grave ones; the fact that Omniscience alone can tell with certainty who are in this condition should be sufficient. Among

the pleasant results of treatment in this institution within the last three years, has been the recovery of an unusual number, whose diseases, from their long continuance and discouraging character, seemed to offer but the faintest hope of a favourable change." \* \* \*

As there are more farmers than men of any other occupation among the patients of nearly every hospital for the insane, it is not uncommon for unreflecting persons to jump at the conclusion that insanity is more frequent among them than in any other class of the population. In regard to this subject, and alluding to the light thrown upon it by the census, the report says :—

"We find, as we always believed, that no life is so generally conducive to health as one that, like agriculture, gives active exercise in the open air, that none is so little likely to be troubled with nervous affections, and none so generally to be preferred for those who are constitutionally disposed to this class of infirmities.

"Agricultural pursuits, healthful as they are, cannot, however, always preserve every one from the physical, and especially from the moral causes, which frequently induce insanity; but the improved general good health which results from such a life, in a large number of cases, gives the power to resist their influence much more successfully than could be done under other circumstances."

Believing that the system of evening entertainments pursued at this hospital, and introduced, but to a less extent, in many others, is destined to become a leading characteristic of the "moral treatment" of the insane, it is desirable to hasten the day of the consummation of that end, by keeping the subject before the profession. Hence we take from the report the following interesting remarks upon it:—

"No intelligent inquirer, who looks carefully into this matter, can well doubt the influence of these entertainments—not simply as a means of passing a pleasant hour, or for the information imparted, but for elevating the general tone of a hospital, and breaking up the sad dulness and gloomy monotony too apt to reign in the evening, through the wards of many institutions; and no diminution of their number, or any lowering of their character can ever be permitted, while a proper appreciation of the high mission of a hospital for the insane is felt by those intrusted with its management. The humblest institution in the land, by making a beginning, and faithfully expending even a small sum every year on this object, will soon have means of much value, and which, as they are increased, will be more and more appreciated by those for whose special benefit they are intended. Wherever even a very moderate number of the insane are collected together, all such means are desirable, and the proper authorities can make no more legitimate appropriation of money, than that for their provision; and the establishment, whatever its character, which is provided with the means, and has no one enough interested to undertake the necessary labour of using them is truly unfortunate."

2. Far from diffuse in his most elaborate mood, Dr. Curwen, of the *State Lunatic Hospital of Pennsylvania*, is, in his report for 1862, so unwontedly brief as to confine himself almost exclusively to statistics.

	Men.	Women.	Total.
Patients in hospital Dec. 31, 1861 . . . . .	151	129	280
Admitted in course of the year . . . . .	64	45	109
Whole number . . . . .	215	174	389
Discharged, including deaths . . . . .	71	51	122
Remaining Dec. 31, 1862 . . . . .	144	123	267
Of those discharged, there were cured . . . . .	20	14	34
Died . . . . .	6	10	16

Died from the exhaustion of acute mania, 8; exhaustion of chronic mania, 3; paralysis, 2; consumption, 2; epilepsy, 1.

"Throughout the year the general health of the household has been remarkably good, and by the gracious interposition of Divine Providence, we have been preserved from the extension among our inmates of those diseases which have prevailed so generally in the community.

"Three evenings in each week are devoted to lectures on different interesting subjects, and to magic lantern exhibitions."

The following very sensible remarks upon the treatment of insane criminals is taken from the report of the Trustees, which is prefixed to that of Dr. Curwen. They show that the efforts of superintendents to relieve the hospitals of that class of patients, are attracting attention in the proper quarters.

"It is the conviction of all those upon whom devolves the responsible duty of having the charge and treatment of the insane, that the reception and detention of this class of cases, who have been guilty of high crimes, such as arson, homicide, &c.; who have been convicted and become subsequently insane, or have been acquitted upon the grounds or plea of insanity, are not only detrimental to the desirable ends of an ordinary hospital for the insane, in rendering the lives of other patients insecure, and the buildings themselves unsafe; and attaching a moral odium to the hospital, by compelling the simple-minded, virtuous, and spotless unfortunates—the mother, husband, wife, or child of respectable citizens—to mingle with and be subjected to the tainting influences of the condemned felon, whose natural or diseased inclinations are prominently vicious, and characteristic of evil and depraved habits. But, added to all this, there are other considerations which render it absolutely necessary that there should be special provisions made for insane criminals. The great aim in the construction of our modern hospitals for the insane, is to make them a heartsome, inviting, and agreeable home for this unfortunate class of human beings; so that friends and patients may be relieved of that repulsiveness and reluctance to placing one of the beloved of their family in an insane hospital. Consequently, they are robbed of all the old prison-like appearances and arrangements that characterized the less modern establishments of this kind. And it is impossible to retain securely, and with comfort, the class of patients who may be sent there from the court room or penitentiary; as their proclivities for exercising and repeating the dangerous bents of their peculiar, characteristic tendencies, are remarkably universal.

"The retention of this class of unfortunates in a jail or penitentiary for safe-keeping, on the other hand, deprives them of the benefit of that humane treatment, both moral and medical, which is the only hope for their restoration to a sound state of mind.

"There should be a moderate sized hospital erected, in some eligible situation, and constructed on such a plan as to be in every way adapted to the class of patients above referred to."

3. The new building, at Dixmont, on the north side of the Ohio River, eight miles from Pittsburg, intended for the insane patients of the *Western Pennsylvania Hospital*, has been so far completed that the patients in the old building were transferred to it on the 13th of November, 1862. We have heretofore given a description of the general plan of this hospital. As yet, only one of the three sections of each wing has been erected. The internal architectural arrangements are thus described by Dr. Reid:—

"On the first floor of the centre building are managers' parlour, offices, two parlours in which patients see their friends, dining rooms, kitchens and employees' bath room. On the second floor are officers' apartments, sewing room, apothecary, dining room, two rooms for private patients with special attendants, and bath room. On the third floor are six chambers and a chapel, forty-seven feet by fifty-seven, and twenty-six feet high, capable of seating three hundred persons. On the fourth story are six chambers and a store room, making in all thirty-five apartments in the centre building. The wings contain six wards, three for each sex, and can accommodate without inconvenience one hundred and forty patients. Every ward has a spacious and extensive hall, a parlour, dining room, bath room, and nineteen chambers for patients and attendants. The fourth story at the extreme of either wing is arranged as an infirmary, to which patients can be removed if it is thought best for their good or that of those in the wards.

"Abundant means are provided for warming the whole house with heated air,



of lighting it with gas, and securing perfect ventilation of every apartment; a bountiful supply of water is at hand, as well as many fixtures and arrangements specially designed for the comfort of the patients."

The patients were removed *en masse* from one building to the other, as will be perceived by the subjoined extract:—

"Through the kindness of Messrs. Bradley and Morris, of the Pittsburg, Fort Wayne, and Chicago Railway Company, we were furnished with a special train of cars, and were thus enabled to transfer the entire household, consisting of one hundred and thirteen patients, attendants and other employees, from the hospital in the ninth ward to this one, with but little inconvenience, without accident, escape, noise, or excitement likely to attract attention. The patients enjoyed the ride, and entered their new home willingly, many of them appreciating the liberality and philanthropy which erected this noble building for their use, where recovery may be had, if possible, by kind and sufficient care, and the agonies of their "minds diseased" be ameliorated by the genial influences surrounding them."

	Men.	Women.	Total.
Patients in hospital, January 1, 1862 . . .	67	43	110
Admitted in course of the year . . .	35	36	71
Whole number . . .	102	79	181
Discharged, including deaths . . .	35	32	67
Remaining, January 1, 1863 . . .	67	47	114
Of those discharged, there were cured . . .	18	7	25
Died . . .	3	0	3
Died from exhaustion of acute mania, 2; variola, 1.			

"The disparity in the number of males and females is readily accounted for by the fact of there having been three wards for the former and only two for the latter in the old Hospital; the accommodations for each sex in this building being equal, this difference will soon cease to exist."

In the table of supposed causes, eight cases are attributed to "War excitement," but nothing further is said of them.

It appears from the report that a very decided general improvement of the patients soon followed their introduction to the larger, more convenient, and better furnished apartments of the new building, and from the operation of the more liberal facilities for moral treatment than had been, or could well be, supplied at the hospital in the city.

Among the means of amusement and entertainment recently introduced, are a billiard table and a magic lantern.

The following extract is from the report of the trustees:—

"The Board would fain hope that at some future period this Commonwealth will follow the example of some of her sister States, by the construction of an asylum for insane criminals, as well as an institution for the reception and reformation of inebriates."

4. The central edifice of the new building, near Baltimore, for the *Mount Hope Institution*, is completed and occupied. It "is 77 feet front by 84 feet deep, with a back building four stories high, 55 feet 8 inches by 76 feet 8 inches. It is crowned with a heavy bracketed cornice and lofty pediment, and will be surmounted with a handsome and well-proportioned cupola."

In the basement are two reception rooms, two dining-rooms for patients, the kitchen, and "the apartments of the Sisters who have the management of the house." On the second, or principal floor, is a very large "drawing-room," 26 by 72 feet, a music-room, billiard-room, work-room, clothes-room, and dormitory. On the third floor are five large rooms, a dormitory, and the chapel, which is octagonal, 45 feet in span, and of the height of two stories of the building. On the fourth floor are several rooms, of which one, 22 by 52 feet in size, is used as an infirmary. On the fifth floor are five large rooms and two small ones.

	Men.	Women.	Total.
Patients in the asylum, January 1, 1862 . . . . .	78	119	197
Admitted in course of the year . . . . .	154	56	210
Whole number . . . . .	232	175	407 <sup>1</sup>
Discharged, including deaths . . . . .	130	49	179
Remaining, January 1, 1862 . . . . .	102	126	228
Of those discharged, there were cured . . . . .			37
Died . . . . .			15

Died of exhaustion from maniacal excitement, 4; convulsions, 3; senile decay, 3; pulmonary consumption, 2; dysentery, apoplexy, and marasmus, 1 each.

The number of admissions much exceeded that of any former year. In his remarks suggested by this increase, Dr. Stokes says:—

"It would be impossible to diffuse amongst a people agencies more inimical to their healthy mental condition than now prevails in this country. Their tremendous effects are being displayed in the rapid increase, beyond all precedent, of all the diversified varieties of mental disorder. Our insane asylums are being filled with victims exemplifying the terrible strain to which the mind and feelings of all classes of society are night and day subjected."

This is the most discouraging view of the present circumstances of our people that we have met in the reports. But Baltimore is peculiarly situated, in regard to the war, and hence is not a stand-point from which accurately to judge of the whole country. But in looking over the table of "Supposed causes," in the report, we find that only nine cases are attributed to "Excitement of (the) times." One is assigned to the "Brown raid excitement," while, of the whole 407 cases, 124 originated in "Intemperance."

As it is not often that the medical treatment in the hospitals is published, we think the following extract will be read with interest:—

"Our space will allow of but a very limited enumeration of a few leading remedies in their application to the cure of insanity. In this list opium and its alkaloids and the tinct. of opium hold the foremost rank in importance. From these, when given in large doses, we have frequently witnessed the most rapid and remarkable effects. We consider it as indicated in cases of great cerebral irritation, and when inordinate nervous excitement, sleeplessness, and other distressing symptoms exist. We generally use in preference the sulphate of morphia, and in doses of one grain three times a day, we have time and again noticed the most wonderful effects in allaying high nervous excitement and erythsm, and in inducing sound and continued sleep, from which the patient awakes quiet, composed, and tractable. The fear that constipation, poisoning, and similar bad effects are likely to follow such large doses, we have found to be wholly groundless. We have seen vomiting induced by medium doses, but this symptom has disappeared on increasing or diminishing the dose, according to circumstances. We have never seen any subsequent dangerous depression attributable to morphia. It is given cautiously, and in small doses, if at all, when there is a torpidity of the system, a tendency to stagnation in the portal system, disease of heart, chest, or abdomen, or symptoms of general paralysis. It is sometimes combined with Huxham's tincture of bark, or with the preparations of iron, guaiacum, and other tonics. We do not regard cerebral congestion, or mental depression, as contra-indications; for we have seen the greatest benefit from its use in both these cases. When the preparations of opium are indicated, they sometimes effect, with surprising rapidity, a complete revolution in the condition of the patient. In cases of suicidal melancholia, a striking improvement in the mental state of the patient is frequently visible in a short time. By its use, in a few days, the whole current of his feelings will undergo a complete change. He awakes to a new life. He acknowledges his former delusions, becomes tranquil and composed, and the whole aspect of the case altered for the better."

<sup>1</sup> Besides these there were 58 cases of mania & potu.

5. Dr. Chipley, of the *Kentucky Eastern Lunatic Asylum*, gives the following statistics:—

	Men.	Women.	Total.
Patients in hospital October 1, 1861 . . . . .	137	100	237
Admitted in course of the year . . . . .	26	17	43
Whole number . . . . .	163	117	280
Discharged, including deaths . . . . .	26	23	49
Remaining October 1, 1862 . . . . .	137	94	231
Of those discharged, there were cured . . . . .	15	10	25
Died . . . . .	5	11	16

Died of phthisis pulmonalis, 10; exhaustion, 2; epilepsy, 3; apoplexy, 1.  
 "In eight cases insanity is attributed to the 'war excitement.'"

6. Reports are issued from the *Michigan Asylum for the Insane* biennially. In the one before us, which includes the two years ending Nov. 30, 1862, it is said that the central edifice of the hospital was inclosed, and partly finished within, but the northern wing had not been begun.

	Men.	Women.	Total.
Patients in hospital Nov. 30, 1860 . . . . .			109
Admitted in the course of two years . . . . .			187
Whole number . . . . .			296
Discharged, including deaths . . . . .			141
Remaining Nov. 30, 1862 . . . . .	58	97	155
Of those discharged, there were cured . . . . .			63
Died . . . . .			27

Many applicants for admission have been rejected for want of room.

"The numbers of females received exceeds that of males by 35. \* \* \* \*  
 Applications for females have been much more numerous than for males, and upon our list of deferred applicants the ratio of the one to the other has been very uniformly that of 5 to 3. The points involved in this disparity are of great professional interest, and will be presented when the experience of the Institution shall have become more extended. At present, it will suffice, by way of partial explanation, to remark that the cause largely preponderating over all others in inducing insanity in this State, is *ill health*, and the agencies through which it is most generally operative, are of a character to render our females peculiarly exposed thereto. For reasons somewhat analogous in character, the number of females incurably insane now dependent upon public support elsewhere, either wholly or in part, is much larger than that of males."

It appears from the subjoined extract, Dr. Van Deusen does not think that the influences of the war are wholly productive of evil.

"It is true that a judiciously directed military training, under competent officers, will be promotive of high physical development; and wholesome lessons of self-control and self-reliance will be well learned. One of the most painful characteristics of the present age has been a growing disregard of the rights of others, an increasing disposition to insubordination and lawlessness, and a spirit of irreverence, as debasing as it is wicked. We shall hope to see this checked in a measure by the cultivation, under a healthy military discipline, of a more correct recognition of relative obligations, and the duty of obedience, both to human and divinely constituted authority."

We have room for but one more extract from this full and interesting report.

"There has been presented for treatment during the year, a case of the somewhat rare but very interesting form of disease, described by Drs. Romberg and Hensch, of Berlin, Drs. Marsh, Begbie, and others, of Great Britain, and Dr. Worthington of the Friends' Asylum at Frankford, Pennsylvania. The disease in question, occurring, as a general rule, in females only, seems to be characterized by a combination of the following symptoms: anæmia, enlargement of the thyroid gland, protrusion of the eyeballs, and abnormal mental manifestations of a peculiar character. In May last, application was made for the admission of a lady who had been recently confined with her first child, and

was said to be labouring under an attack of puerperal mania. Her symptoms, as represented, were not very urgent in character, her sleep was not seriously disturbed, her appetite was fair, and general strength good.

"When she was admitted it was evident that there was serious cerebral disease of recent date, with delirium so intense as to have been readily mistaken for mania, and which soon terminated fatally. The earlier symptoms in this case coincide most remarkably with those the authors referred to have presented as characteristic of the disease. The anæmia and palpitation appeared some five years since; the enlargement of the thyroid gland and protrusion of the eye were later symptoms and slow in development. The protrusion was ultimately very great, amounting to one-fourth of an inch beyond a line drawn from the superciliary ridge to the prominence of the cheek, but had at no time impaired vision. The mental symptoms were of the same peculiar character. The caution as to special care in these cases, just previous to confinement, is worthy of note. The dangers incident to this period were in our patient increased by the existence of a permanent enlargement of the tonsils. In a recent medical publication, 'M. Charcot relates a case of *ex ophthalmic goître*, in which all the symptoms were most favourably modified or arrested by the puerperal state. It appears that the same results have been observed in three cases recorded, in which the women became *enceinte* while suffering under this affliction.' In the case here reported, the same favourable modification marked the character of the mental manifestations, the other symptoms continuing without special change. The immediate cause of the protrusion of the eyeball, which has been variously explained, seemed, in this case, to be mainly due to muscular flaccidity."

7. Dr. Chapin's report for the fiscal year 1861-62, of the *King's County (N. Y.) Lunatic Asylum*, contains nothing excepting the statistics of the year which would be interesting to the general professional reader.

	Men.	Women.	Total.
Patients in hospital July 31st, 1862 . . . .	144	222	366
Admitted in course of the year . . . .	79	127	206
Whole number . . . . .	223	349	572
Discharged, including deaths . . . . .	72	104	176
Remaining, July 31st, 1863 . . . . .	151	245	396
Of those discharged, there were cured . .	29	47	76
Died . . . . .	23	26	49

Died of phthisis, 12; exhaustion, 8; epilepsy, 6; general paralysis, 4; diarrhoea, 4; erysipelas, 3; paralysis, 2; pneumonia, 2; softening of the brain, 2; old age, 2; apoplexy, meningitis, cancer and tumour, 1 each.

"War excitement" is the alleged cause of insanity in nineteen cases.

8. The report for 1862 of the *New York City Lunatic Asylum* was noticed in a former issue of the Journal: that for 1861, which is now before us, was but recently received.

	Men.	Women.	Total.
Patients in hospital January 1st, 1861 . .	301	453	754
Admitted in course of the year . . . .	149	239	388
Whole number . . . . .	450	692	1,142
Discharged, including deaths . . . . .	146	191	337
Remaining, December 31st, 1861 . . . .	304	501	805
Of those discharged, there were cured . .			144
Died . . . . .	54	67	121

Died of phthisis pulmonalis, 43; *paralysie générale*, 16; congestio cerebri, 16; apoplexy, 8; epilepsy, 7; chronic diarrhoea, 5; diarrhoea, 5; paralysis, 6; typhomania, 3; inflammation of brain, 2; hemiplegia, 3; ascites, pneumonia, pericarditis, hypertrophy of heart, ulceration of intestines, exhaustion following the effects of opium, and suicide by strangulation, 1 each.

Dr. Ranney thinks that softening of the brain is "evidently increasing in frequency."

The death from the effects of opium was that of a woman who had made several ineffectual attempts at suicide both before and after her admission to the hospital. But "on the 11th of September she adroitly obtained, from a medicine closet, a bottle containing about four ounces of laudanum. About six o'clock in the evening she was found in her room completely comatose, unable to swallow, and the introduction of a feather into the fauces, or application of spirits of hartshorn to the nostrils produced no effect. The respiratory movement occurred only at long intervals, and the symptoms generally were strongly indicative of immediate death. Marshall Hall's "Ready Method" was adopted, and continued for five hours, when the respiration gradually improved, and the "rolling" was discontinued. She was carefully watched through the night, and the next morning could walk about the hall. Her symptoms did not seem alarming during the day, except the inability to swallow, owing to paralysis of the muscles of deglutition, and she spoke several times of her act, regretting its failure. In the evening she suddenly became worse, and died within ten minutes, apparently from nervous exhaustion."

The following remarks are made in reference to two classes of patients:—

"Serious evil results from the disposition to send to our asylum children and very aged persons. The children are usually imbecile, frequently epileptic, and, at home, have nearly exhausted the patience of their parents or friends. To place them among insane adults seems unnatural and unsafe, and they prove a source of great anxiety without any corresponding improvement. A child requires other children for associates.

"Insanity, except a peculiar form of dementia, rarely occurs in extreme old age. But it is not uncommon that a change takes place in the mind—the result of natural decay—the person becoming somewhat irritable, peevish, and unwilling to comply with the wishes of his or her friends. It may or may not amount to actual insanity; but, as a general rule, the parties could be made much more comfortable in declining years with those who are their natural guardians, than in a public hospital. The feeling is quite too common that a lunatic asylum is a grand receptacle for all who are troublesome."

Appended to the report are the principal statistics of the hospital for fifteen years, from 1847 to 1861, both inclusive. We make some selections from them.

	Men.	Women.	Total.
Patients in hospital January 1, 1847 . . . . .	171	212	383
Admitted in the course of fifteen years . . . . .	2,825	3,417	6,242
Whole number . . . . .	2,996	3,629	6,625
Improper subjects . . . . .			61
Discharged cured . . . . .			2,862
Died . . . . .	811	920	1,731
Remaining, January 1, 1861 . . . . .	304	501	805
Single . . . . .	1,506	1,516	3,022
Married . . . . .	1,194	1,503	2,697
Widowed . . . . .	125	399	524
Between 20 and 30 years of age . . . . .	919	1,254	2,173
Between 30 " 40 " . . . . .	915	1,012	1,927
Catholics . . . . .			3,245
Protestants . . . . .			2,819
Hebrews . . . . .			178
Natives of America . . . . .			1,423
Foreigners . . . . .			4,819

It is worthy of remark that, of the patients admitted, the number of females exceeds that of males by 592, or nearly 21 per cent.

The principal causes of death were as follows: consumption, 500; chronic diarrhoea, 197; cholera, 169; paralysis générale, 131; congestio cerebri, 96; epilepsy, 78; paralysis, 73; diarrhoea, 61; dysentery, 55; typhomania, 49; old age, 49; apoplexy, 44; typhus fever, 19; inflammation of the brain, 19; typhoid

fever, 17; dropsy, 15; erysipelas, 12; submersion, 12;<sup>1</sup> delirium tremens, 10; suicide (by suspension, 7; submersion, 3; strangulation, 1; taking laudanum, 1;) 12; organic disease of heart, 8; marasmus, 6; exhaustion from mania, 6; inflammation of lungs, 8; ascites, 6; pneumonia, 6; albuminuria, 5; pericarditis, 4; peritonitis, 4; hydrothorax, 4; softening of the brain, 3; hæmoptysis, 3; hydrocephalus, 3.

The remaining 45 cases are attributed to 36 different diseases, but few of them connected with the mental disorder.

No other hospital in America has ever reported so many cases of *paralysie générale*, that peculiar form of paralysis to which the insane alone are subject; and the results in these cases are confirmatory evidence of the fatal character of the disease. The number reported is 146; of which 3 were discharged improved, 12 unimproved, and 131 died.

The number of widowers, compared with that of widows, is as 5 to 16. The relative proportion of Americans to foreigners is as 1 to 34. Of the 4,819 foreigners, there were from Ireland, 2,982; Germany, 1,008; England, 361; Scotland, 114; France, 79; Prussia, 36; Switzerland, 32; Canada, 22; other British provinces, 30; Wales, 20; Sweden, 16; Italy, 15; Poland, 14; Denmark, 11; Bavaria, 9; Holland, 8; Norway, 7; Austria, 7; Belgium, 6; Hungary, 5; Russia, 4; Portugal, 3; Saxony, 2; West Indies, 11; Hanover, Africa, Columbia, Finland, Chili, and Mexico, 1 each; and 2 were natives of the "Atlantic Ocean." P. E.

ART. XXI.—*On the Treatment of Diphtheria, with Illustrative Cases.* By E. N. CHAPMAN, M. D., Professor of Therapeutics and Materia Medica, etc. etc., in the Long Island College Hospital. From the Boston Med. and Surg. Journ., for Feb. 1863. 8vo. pp. 32.

THIS is one of the many publications on the nature and treatment of diphtheria to which the very extensive prevalence of the disease, in a more or less malignant form, within the few past years, has given rise. It is one, however, which, as it professes to be based on the clinical observations of the author, has demands upon our attention beyond the majority of its contemporaries, many of which are at the best simply creditable compilations.

Dr. Chapman in this paper has endeavoured to show that diphtheria is a disease dependent upon toxicæmia, and invariably connected with a defective vitality; as a consequence of which there is a constant tendency to a more or less complete disorganization of the crasis of the blood; and that it is only by a free use of stimulants and tonics in the beginning and throughout the height of the disease that the normal condition of the blood can be restored, the fever and inflammation subdued, the deposit in the throat made to disappear, and unpleasant sequelæ and the danger of relapse prevented.

In respect to the cause of diphtheria, Dr. C. remarks, that we need not seek for a specific poison received into the blood from without, and multiplying itself, like a ferment, so as to contaminate the entire circulating mass. A change from the normal condition of the atmosphere, or a variation in its electric condition, would be sufficient to impair its power of ministering fully and properly to the necessary changes which the blood undergoes in the lungs in order to perfect its vital elaboration. This abnormal condition of atmosphere may be such as scarcely to be felt by the healthy and robust, but quite sufficient to disturb seriously the organism in debilitated subjects or those possessed of deficient vital power. In Dr. C.'s experience the subjects of diphtheria were almost invariably children; or when it attacked adults it was those of little stamina, or who at the time were suffering from unusual exhaustion. Children inheriting a scrofulous diathesis, or other vicious state of the organism, were the ones most commonly attacked.

<sup>1</sup> Perhaps partly suicide—but mostly from attempts to escape.

That diphtheria is not the product of an aerial poison, of animal or vegetable origin, Dr. C. feels convinced. That it is dependent upon some abnormal state of the atmosphere calculated to impair the vital status of the blood is shown, he thinks, by the fact that diphtheria prevails during all seasons, and in all climates: as well in dry and elevated as in low, wet, miasmatic regions; as well in the well paved, open and clean streets, among the industrious and well to do classes, as among the victims of want and vice who crowd the filthy courts and alleys; in fact, neither filth, vegetable or animal effluvia, nor poverty, with its attendant evils, would appear to generate the disease, to increase its virulence, or to promote its dissemination. The disease is not self-limited, has no fixed stages of increment or decline; it may occur repeatedly in the same individual, and is not propagatable by infection or inoculation. Though several members of a family may be attacked simultaneously or within a day or two of each other, the disease seldom, if ever, spreads from these to visitors, or even to other families in the same house. It is no more than we should expect that more than one of families of children, of similar organization and habits, breathing the same air, day and night, and eating at the same table, having identical susceptibilities and similar surroundings—should be attacked simultaneously or in comparatively quick succession. Generally, however, the disease occurs in isolated cases. It is only at long periods that the peculiar condition of atmosphere required for its production occurs to such an extent as to give it an epidemic character.

A series of thirty-eight cases is presented by Dr. C., in illustration of the character, phenomena, and treatment of diphtheria. By these cases, nearly every varied phase of the disease is depicted. In all, the stimulating treatment was employed, and with the same happy effect, and this, whether in the stage of excitement, fever and inflammation, or in that of prostration, paralysis, rheumatism or dropsy. Dr. C. considers that there is the same state of the blood in diphtheria as usually occurs in scrofulous children, or in adults reduced by disease or who are of feeble constitution. It is evidently the result of a diminution of vitality throughout the organism. This condition of things, according to the experience of our author, is most effectually counteracted by stimulants and tonics, and, as a consequence, the morbid symptoms checked, the inflammation subdued, the membranous deposit removed, a rapid recovery promoted, and relapses guarded against.

The stimulant and tonic which have proved the most successful in his hands are alcohol and quinia, or the sulphate of cinchonia, exhibited in such doses and at such intervals as to produce prompt and full stimulation of the nervous and vascular systems. Either singly, may suffice, when the vital forces require but slight aid to maintain the integrity of the blood. In the more malignant cases of diphtheria, however, the co-operation of the two will be demanded. The alcoholic stimulant should be continued in diminished doses for a few weeks after the disease and its sequelæ have disappeared, in order to prevent a relapse.

In the more chronic cases, with a hemorrhagic tendency, Dr. C. recommends that for a time at least, a sesqui-salt of iron be substituted for the quinia or cinchonia. Thus he advises fifteen drops of the muriated tincture, or five drops of the solution of the chloride or persulphate of iron, to be given every third or fourth hour whenever it is desirable to bring about an increase in the crasis and coagulability of the blood. In the simply chronic cases, as the main object is to counteract anæmia, the above remedies may be given in smaller doses. In the chronic form of paralysis consequent upon diphtheria, Dr. C. speaks highly of the efficacy of the pyrophosphate of iron.

Dr. C. disapproves of the administration of, at frequent intervals, portions of animal broths and other forms of nutriment, under an idea that in so doing we are sustaining the strength and improving the blood of the patient. As the functions of digestion and assimilation are in a great measure suspended, the ingestion of food can only have a tendency to overload and disturb the stomach. During convalescence food is to be given the same as in other diseases.

Of the chlorate of soda so favourite a remedy of late years in diphtheria, Dr. C. speaks disparagingly. It is at best, he remarks, an unreliable remedy, and he is not certain but that in many cases its employment may be even injurious.

Local treatment Dr. C. considers to be of little efficacy; it should be limited,

he thinks, to the occasional ingestion of mild demulcent fluids. All irritating, astringent or stimulant washes increase, he remarks, the inflammation of the fauces, and augment rather than diminish the local deposit: but, he adds, of the many kinds of local medication calculated to cause a spreading of the membrane and to extend it into the rima glottidis, none could have been devised more effectual than the various caustic applications which have been employed by almost every physician in cases of diphtheria. They augment the already existing congestion, and at the same time destroy the epithelium of the unaffected parts, when, not unfrequently, the denuded parts become covered, as is the case in other localities, with the membraniform exudation. In one of Dr. C.'s cases, two hours after the application of tincture of iodine the exudation was found extending over two-thirds of the posterior surface of the pharynx.

Dr. C. believes that in cases in which the larynx is not so far implicated as to interfere in any serious degree with the aëration of the blood, the general treatment should be relied on as the one presenting the best chance for the patient: but, when at each inspiration, there is an ineffectual effort to inflate the lungs, and the face and lips assume a purple tinge, in patients over two years of age, tracheotomy, as a last hope, should be performed, all other things being favourable, and the exudation not having, so far as can be ascertained, extended into the trachea.

From the account of the treatment of diphtheria as given by Dr. C., there is many useful suggestions to be derived. Particular attention we would direct to the subject of local applications to the throat, with the view to replace the morbid condition of that part by one of health, and thus get rid of the membraniform deposit, which by many practitioners would seem to be looked upon not as a mere effect of a general disease but as constituting itself the entire disease.

Happily, experience is daily teaching our physicians the mischievous effects of the profuse and repeated canterization of the fauces with nitrate of silver, which a short time since so generally prevailed. D. F. C.

---

ART. XXII.—*First Outlines of a Dictionary of Solubilities.* Part II. By FRANK H. STORER, Cambridge. Sever & Francis. 8vo. pp. 234.

WE welcome with pleasure the appearance of the second part of Mr. Storer's Dictionary. The brief interval which has elapsed since the appearance of the previous part, seems to indicate that the whole work was well under way when the first part was published, and to promise an early completion for this valuable work.

Every one who applies himself seriously to chemical investigation, and desires to ascertain every minute particular of what is already known in some particular direction, finds how difficult it is to accomplish this perfectly, and unfortunately this is a difficulty which is constantly on the increase. To collect the vast amounts of research which are scattered through the numerous chemical and physical journals, and classify them under appropriate heads, is a work so serious that it has never yet been successfully done. Extraordinary efforts have been made, and very voluminous and excellent text-books have been written. But the faults are twofold. They lie to some extent in the execution, which, however praiseworthy, is still imperfect, and again in the very essence of the matter, in the fact that the subject is too extensive for any text-book. The remedy lies, partly, in the execution of specific manuals like Mr. Storer's, as we have before pointed out, and partly in some new system yet to be devised, and which should obviate one of the great troubles of the science of the present day, viz., the multitude of chemical journals, and their (in some cases) excessive cost. The great desideratum would be a chemical journal published by a committee of chemists of all nations, containing papers in any language which the writer might select, intended to embrace, as far as possible, all original memoirs on chemical subjects. The extensive circulation which such a jour-



nal would obtain, would enable it to be furnished, notwithstanding the great size which it would have, at a price probably not exceeding three or four times the cost of an average journal at the present time, and it would place in the hands of every chemist the complete original paper on every subject. Under the present system we but too often have but three or four different bald summaries in each of as many journals, perhaps all differing from each other, and possibly all incorrect. Whereas, were it possible to have a combined journal such as above described, a mere reference to its index would direct the chemist to all the original sources of information in every branch. It is to be feared, however, that such a plan, however desirable, is yet considerably in advance of the times. That something of the sort may eventually be accomplished, we may be at least permitted to hope—certainly the need for some new system is becoming more and more necessary, and as the number of workers in the field of chemistry is daily increasing, this necessity becomes more and more pressing.

The second part of Mr. Storer's book exhibits the same well-applied and intelligent industry which characterized the first. No pains seem to have been spared, no labour thought too great, to collect every fragment of knowledge bearing upon his subject. Thus we find the information on the subject of Essence of Turpentine derived from fifteen sources; that on Fibrin from nineteen; that on the Iodides of Mercury from forty-one; that on Iodine from fifty-three, and on the Nitrate of Potash from no less than sixty-three references, for the most important of which, the page, volume, and journal, are given in which the statements can be found. As a specimen of pains-taking and conscientious execution of a design, it would be difficult to surpass this. In some cases we observe that the results of the author's own investigations are given: this is so with chromate of ammonia, chromate of chromium, and chromate of lead, in the first part.

The second part treats of about 8000 subjects, so that it will be fair to conclude that the complete work will contain in all, about 24,000 substances, a sum which will give some idea of the gigantic labours which have been performed by chemists, within no very long period. It begins with "Convulvulinic Acid," and extends to "Oxide of Tin," commencing with page 223, and terminating with p. 456. The typography and paper are good. We notice a few unimportant typographical errors,<sup>1</sup> but in a work of this kind, especially in a first edition, it can scarcely be expected that they should be wholly avoided.

We hope before many months to see this book complete, and the science of this country and of the world will be under obligations to Mr. Storer for the work which he has done. Nor will his labours cease, we hope, with this production. There are other specialties which might be taken up with great advantage, especially if treated with the same industry and distinguished ability.

M. C. L.

---

ART. XXIII.—*A Report on Hospital Gangrene, Erysipelas, and Pyæmia, as observed in the Departments of the Ohio and the Cumberland, with cases appended.* By M. GOLDSMITH, Surgeon U. S. V. Published by permission of the Surgeon-General U. S. A. 8vo. pp. 94. Louisville: Bradley & Gilbert, 1863.

In the *Domestic Summary* of the last two numbers of this Journal several articles on the use of bromine in hospital gangrene and erysipelas were given; it will not be requisite, therefore, on the occasion of this present publication, to again describe the mode in which this agent has been used, or to present the results thereby obtained in the treatment of these diseases in the Departments of the Ohio and the Cumberland.

In the *Report* before us, besides giving the results of treatment, and the mode of using the bromine, Dr. Goldsmith sets forth his views of the etiology and patho-

---

<sup>1</sup> P. 216, col. 2, line 7, for "zinc" read "silver." P. 216, col. 1, line 22, from b., for "carbonate" read "chromate." Pp. 299, 300, for "hydrate of lanthanum, cerium, lithium," read "hydrate of lanthana, ceria, lithia."

logy of the diseases in the treatment of which it has proved so efficacious, and states the manner in which he conceives the bromine to act.

From the evidence thus afforded, it is to be concluded that bromine, applied in a certain manner, locally, to wounds attacked with hospital gangrene or erysipelas, was productive of most satisfactory results, in the cases in which it was thus applied, which occurred in certain hospitals in the Departments of the Ohio and the Cumberland, in the course of the years 1862-3.

Whether everywhere, and at all times, bromine will prove a "remedy certain in its effects for the arrest of hospital gangrene," and "as surely arrest this disease as quinia will ague," as some of the surgeons say in the present report, remains to be determined by further experience. Dr. Graves, in his clinical lectures, speaks of the absolute certainty he felt, after a limited experience in the management of scarlatina, that all cases could be successfully treated by a plan he had adopted. A trial in other epidemics showed him his mistake. Dr. Goldsmith finds many points of resemblance between scarlatina and the diseases in which he has used bromine. More extensive experience may bring to light some others. In all diseases of this kind, remedies highly thought of for a time, have afterwards disappointed expectation. In erysipelas, we have had announced as specifics, when applied locally, cantharides, iodine, sulphate of iron, &c.; in pyæmia, the tincture of aconite has been claimed as preventative; in scarlatina the efficacy of inunction with lard has had firm believers, &c. &c.

We ourselves have had to treat hospital gangrene, and were entirely satisfied with the results obtained by the following local treatment: The putrid tissues were thoroughly removed; infiltration of the unhealthy secretions among the muscles and under the skin was prevented by the proper application of bandages; and a saturated solution of white sugar was poured upon the sore. We were satisfied with the effect produced by this treatment; we are certain that we should not have any reason to be so at another time, or in other places. Circumstances vary cases of disease as of everything else; they make them curable by simple syrup, or by the application of a simple ointment, or so violent as to defy the actual cautery, and nitric acid, and also, it is most likely, bromine itself.

In the opinion of Dr. Goldsmith, which we give in his own words, "hospital gangrene, pyæmia, and erysipelas are, in some way, connected with miasms, or with poisonous substances, by some process developed in animal matter in the course of a series of chemical actions expressed in the generic term putrefaction." These miasms, or poisonous substances, act locally; and the disease in no case can be said to have a constitutional origin; the constitutional condition is a sequent state, and is caused by the absorption of the fluids produced by the local processes. The bromine acts from the power it possesses of arresting putrefaction, and of destroying the products of putrefaction in whatever form those products may present themselves, solid, fluid, or gaseous.

All must agree that the diseases in question are connected with miasms, or poisonous substances; the doubtful point is whether the poison can and does only act locally; that is, only through some solution of continuity. The great weight of authority is to the effect that, equally well with the poison of typhus—an animal poison developed by the same producing circumstances, and which unquestionably does infect through the surfaces of internal organs—the poison of hospital gangrene, the most important of the diseases under consideration, can enter the system through visceral surfaces. Endeavouring to aid our own powers of observation by the experience of others, we have concluded, from what we have witnessed ourselves of hospital gangrene, that infection is produced both from the surface of wounds, and also from the surface of internal organs. We have seen, as others have seen, cases where the change in the appearance of the wound was followed by constitutional phenomena, and, at other times, and these were when the hospital we visited was greatly overcrowded, cases where general disturbance preceded any local alteration in the character of the wound. We cannot, consequently, believe that any local application will cure all cases of hospital gangrene, and though there is sufficient evidence to show that bromine is one of the most effectual local remedies, and that the profession should be thankful for the discovery of its usefulness, yet that more than this cannot be conceded in regard to it.

W. F. A.

ART. XXIV.—*Synopsis of Lectures on Materia Medica and Pharmacy, delivered in the University of Pennsylvania. With Three Lectures on the Modus Operandi of Medicines.* By JOSEPH CARSON, M.D. Third edition, revised. 8vo. pp. 244. Philadelphia: Blanchard & Lea, 1863.

In this volume, the author has furnished to his students a very useful and convenient guide to the course of lectures delivered by him in the University of Pennsylvania. It is presented as a framework only, which, however, the student can, and should fill up from notes taken at the lectures as they are delivered. This synopsis shows that the author's course is well arranged and very thorough and complete.

Appended are three lectures on the modus operandi of medicines. The first two are devoted to an exposition of the manner in which medicines act through the nervous system, and the third to the evidence that absorption of certain medicines into the circulation actually takes place, and to an account of the mode in which this is accomplished.

These lectures are well worthy of the careful consideration of students, for they furnish the most plausible exposition of the subject we have met with. Dr. Carson has evidently studied with great care the recent investigations of M. Claude Bernard, and by the aid of the light shed on physiology by the researches of that indefatigable experimental physiologist, he has shown, what in the obscurity of an earlier period could not have been shown, the manner in which medicines act through the nervous system. Dr. C.'s exposition of this subject is most ingeniously and carefully drawn up; and in the present state of physiological science, may be received as correct.

---

ART. XXV.—*Enlarged and Revised to 1864. The Medical Formulary: being a Collection of Prescriptions derived from the writings and practice of many of the most eminent physicians in America and Europe. Together with the usual Dietetic Preparations and Antidotes for Poisons. To which is added an Appendix on the Endermic Use of Medicines, and on the Use of Ether and Chloroform. The whole accompanied with a few brief Pharmaceutical and Medical Observations.* By BENJAMIN ELLIS, M.D., late Prof. of Mat. Med. and Pharm. in Philad. Coll. Pharm. Eleventh edition, carefully revised and much extended, by ROBERT P. THOMAS, M.D., Prof. Mat. Med. in Philada. Coll. Pharm. 8vo. pp. 341. Philadelphia: Blanchard & Lea, 1864.

Among the numerous difficulties which the young practitioner has to encounter, not the least is the correct and judicious formation of prescriptions. The design of this volume is to afford assistance in overcoming this difficulty—to furnish models for extemporaneous formulas, the proportions of the ingredients of which may be increased or diminished, according to the age, sex, constitution, or idiosyncrasy of the patient, or of other circumstances.

That it has fulfilled this object, and supplied a want which the young physician felt to exist, the fact that ten large editions have been exhausted, and an eleventh demanded, would seem to afford sufficient proof.

The work is now so well known, and has been so frequently noticed in this Journal as the successive editions appeared, that it is sufficient, on the present occasion, to state that the editor has introduced into the eleventh edition a large amount of new matter, derived from the current medical and pharmaceutical works, as well as a number of valuable prescriptions furnished from private sources. A very comprehensive and extremely useful index has also been supplied, which facilitates reference to the particular article the prescriber may

wish to administer; and the language of the Formulary has been made to correspond with the nomenclature of the new national Pharmacopœia.

We can compliment the editor for the ability with which he has performed his part, and the publishers for the very handsome manner in which they have presented the volume.

---

ART. XXVI.—*Practical Lithotomy and Lithotrixy; or, an Inquiry into the best modes of removing Stone from the Bladder.* By HENRY THOMPSON, F. R. C. S., of University College Hospital, &c. 8vo. pp. 274. London: John Churchill & Sons, 1863.

THE high professional standing of Mr. Thompson, and his remarkable abilities as an author, have led us to open the work before us, with the expectation of being both gratified and instructed in its perusal.

The author commences his work with some general considerations respecting lithotomy; he then successively treats of the lateral operation, those operations performed in the central portion of the perineum, and the high or supra-pubic operation, to each of which is devoted a separate chapter, as are also one to the causes of death following lithotomy, and the difficulties and dangers met with in cutting for stone. He then proceeds to discuss lithotrixy, the objects of this method of dealing with stone in the bladder, the principles on which instruments should be constructed in order to attain these objects, and the systematic application of lithotrixy in the various stages of crushing a stone; and he concludes with considerations on the choice of proceedings best adapted to different cases, and with a chapter of illustrative cases, setting forth the applicability of the preceding principles to practice. From the outset of the first chapter to the final propositions of the last, a series of logical deductions from sound and extended experience is carried forward, thus verifying completely the title of the volume, "*Practical Lithotomy and Lithotrixy.*"

Unusually valuable sources of information have been placed at the disposal of Mr. Thompson while prosecuting his task. Among other aids he expresses his indebtedness to many of the best known hospital-surgeons of Great Britain for very complete and valuable information relating to nearly 1500 cases of lithotomy, thus affording him a total of authentic reports from all sources respecting more than 2300 cases, of which 1800 are available for statistical purposes. In lithotrixy, Civiale has unreservedly communicated his unrivalled experience and afforded all the aid in his power to add value to the present work.

The fruits of these experiences, added to that which the author himself has personally enjoyed, are embodied in this work, enforcing the broad principles by which the surgeon should be guided in operations for the removal of stone, and furnishing useful practical details, which extensive experience and careful observation alone can supply.

After an attentive study of this work of Mr. Thompson, we feel embarrassed in selecting terms to adequately express the high opinion we have formed of it. We conceive it to be not only far superior to any other in the English language on the same subject, but equal to any now extant. Of course improvements will hereafter be made in the various methods now practised for removing stone from the bladder, but all that is at present known to be advantageous is set forth in this work, and more than this, is exceeding well set forth. The portion devoted to lithotrixy is particularly useful for the reason that this operation has not been so extensively treated of by English authors as those for the extraction of stone by cutting. We enjoyed for several years the opportunity of witnessing the operations of Civiale, at Hospital Necker, and recognize the teachings and practice of this great master in the pages before us. The apparent simplicity of the operation of crushing as performed by Civiale, which, of course, is the result of the perfection of the operation, is well seen in the following anecdote, we heard related by him. A German baron, upon whom he had operated, had a return of the affection some years afterwards, and he told his valet-de-chambre to pack his trunks, that he was going to Paris to be operated upon again. The

valet answered, that it was not worth while to make so long a journey for that purpose, that he had seen the first operation, it was the easiest thing in the world to do, and all that was necessary was to write for the instruments, and he would do it himself. The anecdote shows, as we said before, the *perfection* of the operation of lithotritry when well performed, and all the rules and niceties of practice that render it so perfect are admirably set forth and described by Mr. Thompson.

It is well to add that the work is abundantly illustrated by excellent wood engravings. W. F. A.

---

ART. XXVII.—*On the Diseases, Injuries, and Malformations of the Rectum and Anus; with remarks on Habitual Constipation.* By T. J. ASHTON, formerly Surgeon to the Blenheim Dispensary, &c. Fourth edition, 8vo. pp. 403. London: John Churchill & Sons, 1863.

STRUCTURE, function, and intimate connection with other organs combine to render lesions of the lower portion of the large intestine and the opening that terminates it at once frequent and serious. Mr. Ashton does not exaggerate when declaring, in the introduction of the work before us, that no class of diseases among civilized communities is so prevalent, causes more suffering, or induces so many varied and distressing sympathetic affections. The importance, therefore, to the medical practitioner of a correct knowledge of these diseases, can scarcely be overrated.

The first complete treatise on affections of the rectum and anus, at least in the English language, was that of the late Dr. George Bushe, published in this country in 1837.<sup>1</sup> In the advertisement to that volume, Dr. Bushe states that from pressure of business and declining health, he had been more than a year in correcting the proof; and adds that he hoped to bring out another edition in which the mistakes and omissions of the first should be corrected. Dr. Bushe died, however, before this was accomplished. In 1854, the first edition of the treatise now before us was published by Mr. Ashton, in England.

Mr. Ashton's treatise contains a distinct chapter upon habitual constipation, which that of Dr. Bushe does not, and it does not treat in separate chapters of the anatomy and functions of the rectum, of inflammation and excoriation of the anus, of inflammation of the rectum and anus arising from the application of gonorrhoeal virus, of relaxation of the anus, and of relaxation of the anus with invagination of the mucous membranes. It is, however, all things considered, an improvement upon the American work, or, to speak more correctly and to the point, it is the American work improved. Although the only acknowledgment Mr. Ashton made of his indebtedness to the work of Dr. Bushe—and even this is omitted in the present edition—was to state that he had "gained much valuable information from it," yet every one who will compare carefully the two books must decide that the one can only be considered an improved edition of the other. The order of chapters is changed, the arrangement of paragraphs is altered, long foot-notes are incorporated in the text, &c. &c., by which means the appearance of the book is greatly modified, but yet it is essentially the same work.

This want of originality in Mr. Ashton's treatise has been several times commented upon, both in this Journal and in other medical periodicals, but we feel obliged to refer to it again, from the fact that in place of stating more explicitly the extent of his obligations to Dr. Bushe's work, Mr. Ashton, as just mentioned, has omitted in the present edition to make even the acknowledgment of "having gained from it much useful information."

The fact that within ten years four editions of this treatise have been published in England, and one in this country, are sufficient evidence of the high estimation in which it is regarded by the profession. We believe ourselves that the chap-

---

<sup>1</sup> It was entitled "A Treatise on the Malformations, Injuries, and Diseases of the Rectum and Anus." By George Bushe, M. D., New York, 1837.

ters on fissures of the anus, on hæmorrhoidal affections, on prolapsus of the rectum, on fistula in ano, on strictures of the rectum, and on malformations of the rectum, could be considerably improved by the author's possessing a thorough acquaintance with the practice and with the publications of European surgeons, but his treatise is none the less deserving of being considered as the best of all treatises in the English language on the diseases of the anus and rectum. The present edition, as the author states in the preface, "has been carefully revised, and some portions re-written, with further observations and cases added, for the purpose of more fully elucidating the etiology, pathology, and treatment of this important class of diseases, and rendering the work still more worthy of the position accorded to it by the profession."

W. F. A.

ART. XXVIII.—*A Practical Hand-book of Medical Chemistry.* By JOHN E. BOWMAN, F. C. S. Edited by Charles L. Bloxam. Third American, from the Fourth London edition. 12mo. pp. 351. Philadelphia: Blanchard and Lea, 1863.

BOWMAN'S *Hand-book of Medical Chemistry* has been so well appreciated by the medical public, that any extended notice of a new edition would be unnecessary were it not for the appearance of another name on the title page, and the extensive alterations and additions which have been made. The present edition has been revised and edited by C. L. Bloxam, one of the authors of an excellent hand-book of inorganic chemistry, and Professor of Practical Chemistry in King's College, London. One of the first alterations to be noticed, is the rejection of the peculiar symbols, formerly adopted to indicate the state of aggregation of the substances employed or the results, the ordinary notation only being used. Of the substances not noticed in previous editions, kreatine, kreatinine, inosite, solid excrement, hæmatin, blood crystals, bile, juice of flesh, strychnia, nicotia, and alcohol have been introduced, and the method of detecting them when present, clearly pointed out. Very important improvements in the methods of separating and discriminating both the normal and morbid constituents of the animal secretions, and of medicinal or poisonous substances are to be noticed scattered throughout the work, sometimes consisting of but a single paragraph, at others of whole pages of new matter. The extended application of the volumetric method to the analysis of the urine, the separation and detection of metallic poisons by means of the electric current, and the recent application of the process of dialysis of Professor Graham, for the separation of crystallizable from colloid substances, are of this character. The latter process (dialysis) deserves great attention from the facility it affords of separating in organic mixtures, those substances which have heretofore given the most trouble to the chemist in his examinations, and also in most instances reducing the intensity of colour, and in others producing colourless solution. The student and practitioner have here offered to them a book which will be found very useful, as a guide and aid in the application of modern chemistry and microscopic analysis to medical science, the importance of which will be more and more appreciated, as physicians avail themselves of the means which are thus offered. The publishers have done their part in giving to the present edition, notwithstanding the altered circumstances of the country, an appearance and execution fully equal to the previous issues from the same source.

# QUARTERLY SUMMARY

## OF THE

### IMPROVEMENTS AND DISCOVERIES

#### IN THE

### MEDICAL SCIENCES.

---

#### ANATOMY AND PHYSIOLOGY.

1. *On the Contractility of Healthy and Paralyzed Muscles, as tested by Electricity.*—H. LOBB communicates the following observations to the Royal Society:—

If a moist conductor from the positive pole of the finer wire of an electro-magnetic battery be placed upon the skin covering the origin of a healthy muscle, and the moist conductor from the negative pole upon its belly, and a current of moderate intensity be allowed to pass, the muscle will contract tonically as long as the current passes, and if it be increased in intensity cramp will eventually be induced.

The positive pole may be placed upon almost any part of the body to produce this effect, only as it is removed further from the muscle to be acted on the intensity of the current must be progressively increased.

A healthy muscle contracts with more vigour if the current be direct—that is to say, the positive pole towards the centre, the negative pole towards the periphery.

If a muscle paralyzed from recent injury to the brain be acted upon in the same way, it will be found to contract more vigorously than a healthy one under the same intensity of current.

If an extensor muscle, paralyzed and wasted, the result of poisoning by lead, be treated in the same way, no contraction can be induced, even with the highest power of the apparatus; the unparalyzed flexors will alone contract.

If a muscle paralyzed and wasted from loss of nutrition, as in those local paralyses which are the sequelæ of fever, the exanthemata, convulsions, irritation during teething, &c., be acted on in the same way, no contraction can be induced; if the current is increased in intensity, the healthy or antagonistic muscles contract.

In these two latter instances, after treatment by the continuous galvanic current, when circulation has been reëstablished, and the paralyzed muscles are better nourished, if the current be reversed, the positive pole placed on the insertion of the muscle, and the negative pole on the belly, and if the current is not too strong, faint contraction takes place gradually increasing until the muscle is sufficiently restored to contract under the direct stimulus.

A singular fact in connection with these paralyzed and wasted muscles is, that they will contract at the will of the patient for some time before they will do so to the stimulus of the current, but the paralyzed muscles are not safe from a relapse until they contract vigorously to the ordinary direct electrical stimulus.

At a certain stage of improvement, when the paralyzed muscle will neither contract to the will nor to the electro-magnetic current, it will do so to the combination of the two.—*Dublin Med. Press*, Nov. 4, 1863.

2. *On the Relation of the Circulation in the Liver to the Formation of Bile.*—

In order to prevent the circulation of arterial blood in the liver, M. SCHIFF found that in dogs and cats it was necessary to ligature all the branches of the cœliac axis, also the inferior diaphragmatic artery. After occlusion of these vessels, the secretion of bile still continues and in quantity. In several cats, Schiff tied the portal vein previous to its entering the liver. The animals did not live beyond one hour and a half, and died quietly. Not a drop of bile was found in the gall-bladder, which had been previously emptied. The abdominal viscera, and especially the spleen, were congested. The experiment was repeated on rabbits with a similar result. As *experimentum crucis*, the following is interesting. The operation of exposing the vessels was performed on a cat, but the ligature was not tightened. The animal behaved as a healthy cat ought, bile dropping freely from an artificial opening in the gall-bladder. After one and a half hour, the ligature was tightened, and twelve minutes after the animal lay on the floor as if stunned. Death occurred in fifty-five minutes. Not a drop of bile flowed after tightening of the ligature.

The second part of Schiff's researches refer to the consequences of *gradual* obliteration of the portal vein, as it has been observed in man in pathological cases, and in Oré's experiments, to have been closed without disturbance of the biliary secretion. Schiff does not doubt the correctness of Oré's experiments, but has repeated them with the view of ascertaining whether the obliterated portal circulation was not maintained in some other way. In dogs and cats Schiff continued for nearly six days gradually to tighten a ligature of the portal vein. After the final tightening, the animals died. On post-mortem examination, it was found that three groups of dilated veins communicated with the portal vein above the point of ligature, *i. e.*, with the portion connected with the liver. (1.) Small veins coming off from the veins supplying the gall-ducts and the ligaments of the liver, and in dogs these were in connection with the veins of the stomach. (2.) A part of the veins of the gall-bladder and its ducts. (3.) A vein arising from the venous trunk formed by the crural and epigastric veins, and which receives branches from the floor of the urinary bladder, and, higher up, some from the subcutaneous abdominal veins, from the peritoneum running on the inner surface of the *linea alba*, empties itself into the portal vein. Schiff terms this important, though in the normal state very inconsiderable vein, the *vena parumbilicalis*. Bertrandi has seen in the cat communications with the splenic veins. Burrows has described them in a human fœtus, and Sappey found these communications dilated in cases of cirrhosis of the liver, and viewed them as an outlet for portal blood in disturbance of the portal circulation within the liver. Schiff regards them as of importance in the obliteration of the portal trunk, by giving admission of blood to the liver.

Schiff, therefore, does not see in the results of Oré's experiments, nor in pathological cases, any obstacle to the view that the portal vein furnishes material for the biliary secretion. In cases of congenital abnormal distribution of the portal vein, Schiff supposes that there is some compensation made by other veins, and he thinks it probable that what Kiernan, in Abernethy's case, described as a "navel vein," was the dilated *vena parumbilicalis*. Schiff does not, however, attach any chemical importance to the blood of the portal vein, since it has been seen that in pathological cases, as well as in experiments, the blood of the general venous circulation will suffice. He does not even consider the arterial blood as unsuitable, only it is supplied by the hepatic artery in too sparing a quantity; but, if the artery were dilated, it might compensate for obliteration of the portal vessel. It is rather, however, the province in which the blood must travel which forms the moment of chief importance, and it is in that of the portal veins that the bile is secreted. Schiff tried to prove directly that arterial blood brought into the circuit of the portal vein would maintain the secretion of bile. In three cats, he introduced the current of blood from the renal artery into the portal vein. In one of these experiments, in which the arterial blood circulated for a quarter of an hour without coagulation, Schiff believes that seventeen centigrammes of clear bile found in the gall-bladder, which had been previously emptied, were secreted during the circulation of arterial blood.—*Ed. Med. Journ.*, Oct. 1863, from *Henle u. Meissner's Bericht*.



3. *Ligature of the Vena Porta and Persistence of the Biliary Secretion.*—F. A. CHASSAGNE contends (*Thesis*, Strasbourg, 1860) that the material for the formation of bile is furnished by the hepatic artery, not by the vena porta. He adduces cases (observed by Abernethy, Wilson, Lawrence, Broc), in which the secretion of bile was normal, although the portal vein did not supply the liver, but went directly to the vena cava, also, cases of obliteration of the portal vein in men without disturbance of the biliary secretion. He then refers to Oré's experiments of which he was a witness, and also communicates four experiments by Bernard on dogs, in which the vena porta was ligatured without disturbance of the biliary functions.—*Ed. Med. Journ.*, Oct. 1863.

4. *Remarkable Anomaly of the Cavities of the Heart in an Adult, without Cyanosis.*—M. BOUILLAUD laid before the Academy of Medicine the heart of a man, 39 years of age, who had died from a cerebral affection. The two ventricles formed but one, the intraventricular wall being absent. The pulmonary artery was contracted, and there was no trace of valves. The auriculo-ventricular orifices were normal, but the aorta had but two valves. This artery did not cross the pulmonary artery, but was placed in front and to the left of it. There was observed during life irregularity in the cardiac pulsations, and the stethoscopic signs were those of hypertrophy. A very strong *bruit de souffle* was heard, and an intense vibrating *fremissement* was easily perceived. There was no cyanosis.—*Med. Times and Gaz.*, July 18, 1863.

## MATERIA MEDICA AND PHARMACY.

5. *Therapeutic Properties of Carbolic Acid.*—Mr. GRACE CALVERT has drawn the attention of the profession to the therapeutic properties of carbolic or phenic acid. In a recent article (*Lancet*, Sept. 26, 1863), he adduces evidence from several experimenters as to its efficacy.

Mr. Thomas Turner, in a long paper read before the Lancashire and Cheshire Branch of the British Medical Association, states: "In cases of relaxation of the mucous surfaces, the solution of carbolic acid in glycerine, applied by means of a brush or sponge, is most beneficial. Thus its use is indicated in polypi of the nostrils, as well as ozæna, and in all putrid discharges from the mouth, throat, nostrils, ears, rectum, and vagina.

"I shall next call your attention to the use of carbolic acid in diphtheria, in which disease it is a most valuable remedy used topically to the throat. . . . To apply it I use a sponge mop, which should be used freely, but not saturated, lest a drop should fall into the larynx. The escharotic effect of carbolic acid is confined to the surface to which it is applied, there being no spreading to the contiguous parts, which may happen in the case of nitric acid. The aqueous solution of carbolic acid may be also used as a gargle.

"*Ulcers.*—I apply carbolic acid in different degrees of solution, according to the character of the sore, to carbuncle and ill-conditioned sores.

"*Fistulæ.*—I apply it by means of a wax taper used in lighting gas, or, if the size of the fistula will admit of it, I use a catgut or wax bougie, taking care to carry it to the bottom of the fistula. I have never succeeded in anal fistula where there is a communication with the gut. In these cases an operation is still necessary.

"*Hæmorrhoids.*—The action of carbolic acid is mainly to corrugate, and therefore to obliterate, the sac of the pile. It coagulates the contents, which may be squeezed out; and by corrugation it empties the pile, by which the two surfaces are brought into contact, and thus the sac is obliterated."

Mr. Turner also, in a private note to me, speaks of the use of carbolic acid to fetid ulcers in the following terms:—

"It may be advantageously used, as a solution of one part of acid in forty parts of water, in fetid ill-conditioned ulcers. It alters the action of the blood-

vessels, causing a purulent instead of a sanious discharge, and destroys almost immediately the offensive smell of the secretion. In ulcers having a communication with carious bone, or even necrosis (where the bone is dead), it has, in its diluted state, a good effect when injected into the sinuses leading to the diseased bones. When there is mere caries or ulceration of the bone, it effects the healing process, and in necrosis it promotes the exfoliation of the dead portion. In gangrenous and all offensive sores, it removes all disagreeable smell and putrescency, and may render the discharge innocuous to the contiguous living and unaffected tissues. In its diluted state, therefore, it is a great boon to patients labouring under that class of disease."

When Mr. Turner wishes to employ carbolic acid in a less diluted state than the aqueous solution, and yet not in its full strength as a caustic, he prefers the following solution: He mixes two drachms of pure carbolic acid in one drachm of liquor potassæ and half a pint of water.

It is with pleasure that I am able to add that Mr. Oscar Clayton, F.R.C.S., and Mr. Campbell De Morgan, F.R.C.S., have informed me of several successful applications which they have made of carbolic acid, confirming many of the results of Mr. Turner's, above described.

Mr. Oscar Clayton states that in two cases of fetor of breath, arising from a diseased state of the mucous membrane covering the tonsils, he applied to the parts a mixture of equal proportions of glycerine and carbolic acid, and with perfect success.

Mr. Campbell De Morgan has also applied the glycerine solution of carbolic acid with success to several cases of lupus.

Dr. James Whitehead, of Manchester, prefers treating this disease (lupus) with an ointment made of half a drachm of carbolic acid to one ounce of spermaceti ointment.

Mr. Oscar Clayton has also successfully employed the aqueous solution to several skin diseases—viz., lepra, tinea capitis, rupia, &c.

Dr. Roberts and other medical men have employed carbolic acid with advantage internally for dyspepsia and other derangements of digestion.

Dr. Pattison, of St. John's-wood, writes to me as follows:—

"I have prescribed your carbolic acid in several cases of fungoid disease during the last nine months with marked success. In three cases of fungus hæmatodes in which I employed it, the disease in all was checked in a remarkable manner. A thick crust was speedily formed on the ulcerated and bleeding surfaces, the exhausting discharges were completely arrested, and in one case there was great diminution in the size of the fungous mass. Your carbolic acid is almost a specific in cases of anthrax."

I also think it well to insert the following remarks from Dr. Thomas Hughes, M.R.C.S., F.S.A., London:—

"Sir: I have used Dr. Calvert's carbolic acid as an external application in cases of sloughing wounds with the most marvellous effect; and in no case was its effect more strikingly manifest than in the case of Rogers, one of your miners, who received such a contusion of the hand as to destroy the arteries leading to the index and little fingers; and in spite of every effort made to restore the circulation in the fingers, sloughing took place, and which appeared to spread and extend to the hand and arm with such rapidity that if it had not been for the timely application of the carbolic acid the man would have lost his arm from the most destructive sloughing I ever witnessed. The effect of carbolic acid was so decidedly marked as to leave no doubt of its wonderful effects in checking the spreading of sloughing, and in accelerating the separation of slough. It seemed also to have the effect of promoting the growth of granulations, and hastening the healing of the wounds. I have used carbolic acid in several other cases with the same happy effect.

"AMLWCH, Aug. 29, 1863."

I have found it very successful in one or two instances of intestinal worms, given in doses of a teaspoonful of the aqueous solution in a tumbler of water morning and evening. I have also applied the water solution externally with perfect success in several cases of spora.

Two eminent French physiologists, MM. Gratiolet and Lemaire, have published a most interesting paper on the action of carbolic acid in arresting putrefaction; and they have made the important observation that, whilst it does not interfere with chemical fermentations, such as the conversion of amygdaline into hydruret of benzoile, and the conversion of myronic acid by myrosyne, it completely arrests all vegetable and animal fermentations which arise from cryptogamic life. They have also observed that when carbolic acid is mixed with the vaccine virus, it entirely prevents its peculiar action upon animal organization.

These valuable observations of MM. Gratiolet and Lemaire strongly impress me with the idea that the use of carbolic acid might prove of great advantage in the early stages of consumption, if applied in the following manner—viz., by making the patient frequently inhale the vapour of the acid by means of an inhaler containing some cotton-wool saturated with the acid so that the inspired air must pass through the wool. I would at the same time administer a teaspoonful of the aqueous solution mixed with two ounces of peppermint-water three times a day. I think also that the same treatment might be advantageously tried in cases of scarlatina and typhoid fever, with the addition of saturating the air of the chamber as far as possible with the vapour, by placing lint or wool steeped in carbolic acid in various parts of the room. I would also administer once a day an enema consisting of a weak solution of carbolic acid.

6. *A New Hæmostatic.*—Dr. JANSSENS has called the attention of the Brussels Medical Society to a new hæmostatic proposed by Professor Piazza, of Bologna. Repeated experiments have shown him that the alkaline chlorides render the clots formed by perchloride of iron much more compact, more homogeneous—in a word, more fibrinous. Hence M. Piazza has conceived the idea of mixing solutions of perchloride of iron and pure chloride of sodium, as in the following formula: Pure chloride of sodium, 15 grammes; neutral solution of perchloride of iron (30 degrees), 25 grammes; distilled water, 60 grammes. The chloride of sodium is dissolved in the water; the solution is then filtered, and the perchloride of iron is added. It is said that this hæmostatic has been successfully employed in St. John's Hospital at Brussels by MM. Rossignol and Janssens. It is not liable to produce violent local irritation, the perchloride of iron being diluted, while its efficiency is not impaired.—*Brit. Med. Journ.*, Sept. 19, 1863, from *Bull. Général de Thé.*, 15 Aug. 1863.

7. *The New Diuretic Wine of the Hôtel Dieu.*—M. TROUSSEAU, not satisfied with the existing diuretic wines, has taken considerable pains to frame a formula of one which furnishes good results. White wine, 750 parts, juniper berries, 50, digitalis leaves, 10, and squill, 5 parts. Macerate during four days, and add acetate of potash, 15 parts. Filter. Dose—two or three tablespoonfuls per diem.—*Bull. Gén. de Thérap.*, vol. lxiii.

8. *Local Employment of Bismuth with Glycerine.*—The sedative action of bismuth renders glycerine a very suitable associate. R.—Subnitrate of bismuth 1 to 3 parts, glycerine 3 parts. The bismuth in a state of impalpable powder is to be gradually incorporated with the glycerine. The mixture must be stirred up every time it is employed. When it is applied to the surface a pencil should be employed; but when it has to be introduced within any of the natural cavities, as the vagina or rectum, the finger or plugs of charpie should be used. M. Follin employs this mixture in equal parts at the Salpêtrière in certain diseases of the eye, as chronic granular conjunctivitis, ciliary and glandular blepharitis, etc. M. Debout has found the same preparation of use in eczema of the axillary, vulvar, or anal regions, as well as in chaps of the nipples, lips, and hands. M. Trousseau employs the same mixture, but with only one part of bismuth, in fissures of the anus, when these resist, or when they resist injections.—*Ibid.*

9. *Anomalous Results of the Administration of Chloroform by Inhalation.* H. B. MONTGOMERY relates (*Madras Quarterly Journal Med. Sci.*, Oct. 1862), the following four cases in which he administered chloroform with very interesting anomalous results:—

CASE 1. In the year 1851 a young boy was admitted into Steevens' Hospital, Dublin, having received a severe injury of the leg necessitating amputation. The lad was put under the influence of chloroform by me and carried into the operating theatre in a state of apparently deep insensibility.

As the operation was proceeding I continued the influence of the chloroform by occasional small doses administered in the usual method.

As the patient had struggled a little at one period of the operation, his hands were held by the assistants; and I was compelled, being anxious to ascertain the condition of his pulse, to place my finger on his carotid artery. Immediately, the boy, who had apparently been quietly sleeping, opened his eyes and said in a gentle voice, "Don't put your hand on my throat, there is nothing the matter with it. Do you not see that they are setting my leg." At this time the bone was being divided; and during the subsequent taking up of the arteries he remained quiet with his eyes wide open, but without any symptom of *pain*.

The operation being concluded, the lad was removed to his cot in an adjacent ward, and I remained by his side, attending to the use of the proper restoratives, and after a few minutes he was quite conscious. He declared to me that he had felt no pain and had been utterly unaware of everything that had occurred; and yet, during the whole of a lengthened and painful operation he had not felt any single step of it; and, though fully observant of passing events, was entirely ignorant that his leg was being amputated. In this case clearly consciousness was retained and sensation was completely in abeyance.

But a much more striking case was the following in which the most serious symptoms were present for many hours and threatened to have a fatal termination.

CASE 2. 12th January 1857.—Venkapah, male, aged 4 years, was admitted in the Honore Dispensary at 10 A. M. with several serious injuries, resulting from his arm having, on the previous evening, been entangled in a sugar mill.

The boy was weak and faint on admission, and the hand appeared to have a tendency to become gangrenous.

He quickly rallied after a stimulating draught, and was ordered to have a full opiate at bedtime as he was suffering great pain.<sup>1</sup>

13th. Arm removed by single flap, scarcely two ounces of blood lost.

Chloroform was administered and rapidly took effect, and from this he apparently perfectly recovered. The arm was not immediately closed up but covered with damp cloth and left open, so that in case of hemorrhage the source of it might be readily detected; the boy was then left apparently comfortable, *though not speaking at all*.

Up to this point the case had done well, but very soon afterwards ill symptoms showed themselves. (The operation was probably concluded at about 7½ o'clock A. M.)

About ten minutes afterwards he became restless, and began moving about in bed, jerking his limbs up and down and from side to side. Crying out, apparently from pain, and then falling asleep for a few minutes, waking again, being restless, and falling asleep again. The whole of each series of these different stages taking place about every four minutes.

I was not made acquainted with these symptoms until 11 o'clock, or three hours after the operation. I immediately proceeded to see the child, and found him as described above; my opinion was that he had congestion of the brain from the effects of chloroform, and that if this was not removed he might die from inflammation. He had, I found, eaten nothing before or since the chloroform was administered. R.—Terebinth. ʒij, aqua ferventis ʒiv.—M. Ft. enema. Head to be shaved and cold lotion applied, and one leech to be applied to each temple, if convulsions do not cease after enema.

Enema operated well; one large worm passed (the presence of worms had been suspected by me, and hence I preferred the turpentine enema, otherwise I should have preferred a less exciting one), the fits however continued unaltered.

*One leech applied to each temple.*

<sup>1</sup> Operation was obliged to be deferred from yesterday in consequence of the wish of his friends who desired the presence of an absent relative.

The condition of the child before giving the enema was just as at present, viz., eyes staring and wild in expression during the convulsion, and *fixedly* closed during sleep. Pulse rather slow, but full and bounding; limbs constantly tossed about; head natural as to heat; heart's and lung's action as in health. The leeches drew blood well, and the bites were fomented with warm water to encourage bleeding. He seems a little more rational, refuses all food, and does not reply to questions.

5 o'clock. Seems somewhat easier. Cold lotion continued to the head without intermission. If he does not soon recover he is to have another leech upon each temple. Had a motion about a quarter of an hour ago, but otherwise no change. Another leech to each temple applied, and some thin congee to be given if he can be made to take it.

6 o'clock. Almost immediately after the application of the leeches he began to improve, the convulsions became much less frequent, and in the interval between them he was wakeful and sensible, recognizing his friends and speaking, *but not intelligibly*. He has now about five or six convulsions in the space of one hour.

8 o'clock P. M. Is now quite conscious, and speaks rationally. One of his first questions was an inquiry as to whether *his arm had been removed or not*—from this I infer that he was not conscious during the whole day, and that the congestion of the brain was set up at *the time of the operation*, notwithstanding the apparent recovery from the chloroform (administered 12 hours ago).

14th. The child took some congee at 12 o'clock midnight, and again at 2 A. M.

6 o'clock. Since 2 o'clock this morning the child has slept a good deal and with much benefit, but always, upon awakening, is *slightly convulsed*, but this passes away very quickly.

R.—To have a dose of oil; and, imperial to drink. Cold water dressing on the arm, to be kept wet until 2 o'clock, when the limb is to be dressed.

2 o'clock. Child quite recovered from the tendency to convulsions; is quite well; arm brought together and found to fit well; bowels twice moved since morning.

15th. After the arm was dressed yesterday the child fell into a profound sleep, and awoke in three hours much refreshed. The arm is not painful to-day, and the child perfectly well. To have some castor oil in the morning.

The subsequent history of the case is unimportant—the child did well and was discharged cured.

The results of chloroform inhalation in this case were singular, and to the best of my knowledge are unique. The amount of chloroform used was small and the recovery from it *apparently perfect*; yet, there is little doubt, to my mind, that during this time the boy was suffering from a congestion of the brain, the more decided symptoms of which did not come on for some hours afterwards. During the continuance of them, the indifference to pain and the entire unconsciousness and wildness of the child were more allied to that witnessed in mania than to any other condition. In mentioning *indifference to pain*, I allude to the manner in which he flung about the stump, although he gave expression to pain by his cries. Whatever be regarded as the pathology of this case (of which, fortunately, I had no opportunity of satisfying myself), I have no reason to regret its result as teaching a lesson which I think should be borne in mind by all, viz., *that apparent recovery from chloroform inhalation does not, of necessity, determine all chances of its injurious action*.

The other cases to which I purpose to refer were examples of a more usual form of affection, but one which overlooked might possibly end fatally.

CASE 3. Davee, æt. 25, female, was admitted into the Honore Dispensary on 1st of October, 1856, with fungus hæmatodes on the inner and posterior aspect of the right arm. Excision of the tumour was decided upon and performed on 6th idem; the usual precautions having been taken to prevent ill effects from chloroform. The tumour was found to have deeper attachments than were suspected, and its removal was consequently more tedious than I had anticipated.

Toward the close of the operation the face became livid, she breathed sterterously and with great difficulty. Ammonia, the free admission of air, small

doses of brandy and ammonia, were had recourse to, and the woman recovered, but she did so very slowly.

In this case the operation was fortunately nearly at a close before the ill effects of chloroform became apparent, but they did so with extraordinary rapidity. Not half a minute elapsed from the first symptoms of these ill effects until the woman appeared at the point of death.

In this case the patient was not removed from the operation table for three hours after the chloroform had been given.

She subsequently did well, and was discharged cured.

CASE 4. In the autumn of 1860, I had occasion to operate on a patient suffering from elephantiasis scroti; his heart was *apparently* sound and his general health pretty good. He came under the influence of chloroform (administered at his own request) readily, or to speak more correctly *was coming* under it, when his pulse rapidly failed and he appeared likely to sink; yet neither lividity of the face occurred nor any difficulty of breathing. Restoratives of the usual kind were employed, and he recovered satisfactorily.

Operation was of course postponed, and was subsequently performed without the aid of chloroform. I do not dwell upon this case further than to impress upon the reader the importance of great care in the use of chloroform in operations for this disease. For, in the great majority of instances, there is, or appears to be, fatty degeneration of the heart. I have myself operated upon three cases of this kind in which this disease was probably present: but in two of which I administered chloroform—and I have seen three other cases in the practice of friends Drs. Van Someren and Paul—and in all of them (with one exception) was the inhalation of chloroform attended with considerable risk. However, I am happy to add that no ill effects followed its use. As these cases are to appear in an early number of this journal, I need not now do more than allude to them as bearing upon the practical caution I have above given, and of which I was recently reminded when examining a case upon which I hope to operate in a few days.

As regards the use of chloroform in all cases the conclusions will be apparent; but I may briefly note the points which seem to be proved by the foregoing examples.

1. That loss of consciousness is not essential to loss of sensation.
2. That apparent recovery, at the time, does not prevent the possibility of cerebral disturbance having been set up.
3. That the drug may be continued without ill effects for a long time, and yet *suddenly* induce dangerous symptoms.
4. That, in certain diseases, chloroform must be administered with especial care even though the heart may *appear* to be sound.

10. *Sulphate of Copper in Pencils.*—The frequent employment of sulphate of copper as a caustic, and the inconvenient form of its crystals when used for this purpose, has suggested to a Spanish pharmacist, Don Mariano Llovet, to fuse it in pencils like nitrate of silver. The rapidity with which it loses its water of crystallization interferes with changes in its form; it therefore requires to be mixed with some other substances which, producing no change in its caustic properties, allows it to take the desired shape. M. Llovet therefore used sulphate of alumina and potass (ordinary potass alum); mixing one part by weight of this salt with two of sulphate of copper. The two salts are powdered and placed in a clay or porcelain vessel over a spirit-lamp or any other sufficient source of heat, so as to be gradually melted together. The mass, when melted, is poured into a mould, which should be of bronze, so as to prevent the precipitation of metallic copper. The pencils obtained are of a clear bluish-green colour both internally and externally, and offer some resistance to breaking. The caustic property of the sulphate of copper remains unimpaired. —*Brit. Med. Journ.*, Sept. 12, 1863, from *Gaz. des Hôp.*, 28 July, 1863.

## MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

11. *A New Method of treating Disease by controlling the Circulation of the Blood in Different Parts of the Body.*—Dr. JOHN CHAPMAN, in a recent paper (*Med. Times and Gaz.*, July 18th, 1863), claims to “have discovered that a controlling power over the circulation of the blood in the brain, in the spinal cord, in the ganglia of the sympathetic nervous system, and through the agency of these nervous centres, also in every other organ of the body, can be exercised by means of cold and heat applied to different parts of the back. In this manner the reflex excitability, or excito-motor power of the spinal cord, and the contractile force of the arteries in all parts of the body can be immediately modified.

“In order,” he says, “to lessen the excito-motor power of the spinal cord only, I apply ice in an India-rubber bag about two inches wide along that part of the spinal column containing the part of the cord on which I wish to act. On the same principle, the vitality of the spinal cord may be increased by applying hot water and ice alternately, each in an India-rubber bag, if very energetic action be required; if less vigorous action be necessary, I apply ice, or iced water only, using it several times a day, for a short time on each occasion, with a long interval between each application.

“If it be desirable to increase the circulation in any given part of the body, this I have found myself able to effect by exerting a soothing, sedative, depressing, or paralyzing influence (according to the amount of power required) over those ganglia of the sympathetic which send vaso-motor nerves to the part intended to be acted on. This influence may be exerted by applying ice to the central part of the back, over a width of from four to four and a half inches, and extending longitudinally over the particular segments of the sympathetic and of the spinal cord on which it is desired to act.

“For example, intending to direct a fuller and more equable flow of blood to the brain, I apply ice to the back of the neck and between the scapulæ; increased circulation in and warmth of the upper extremities are induced in the same way; thoracic and abdominal viscera can be influenced in like manner by applications to the dorsal and lumbar regions; while the legs and the coldest feet ever felt can have their circulation so increased that they become thoroughly warm by an ice-bag applied to the lower part of the back.

“The bags I use are of different lengths: of the width already named for adults, and of lesser widths, of course, for children. I have had them made both of India rubber, and of linen with a surface of India rubber upon it: the former are the best. The width of the bags is equal throughout, except at the opening, which is narrowed to facilitate tying, and elastic to admit easily the lumps of ice. When the bag is full, I divide it, if a long one, into three segments: this can be done by constricting it forcibly with a string; the ice of the upper part is thus prevented from descending, as the melting goes on, into the lower part of the bag. I am preparing a bag on a new principle, which will be a great improvement on those I now use; but as it is not yet complete, I abstain from describing it here. I sustain the bag in the position intended by means of ribbon or tape passed through loops at the back of it, then over the shoulders, and round the body.

“Theoretically, I feel assured that by the methods I have described physicians will be able to control the great majority of diseases; experimentally, I have already received numerous and wonderful proofs that this assurance is well founded. By thus acting, by means of cold or heat, or both, alternately or combined, on the spinal cord and ganglia of the sympathetic, I have succeeded in completely arresting the fits of many epileptics, and in curing the following maladies: Paralysis; long-continued and extreme headaches; prolonged giddiness; extreme somnolence; a feeling of want of firmness in standing and of security in walking; habitual hallucinations; loss of memory; weakness and

dimness of sight; ocular spectra; inequality of the pupils; lateral anæsthesia; incontrollable spasmodic opening and shutting of the mouth; cramps of the limbs (in two cases of the hands, incapacitating the patients to continue their work); numbness of the fingers, incapacitating the patient to pick up small objects, or to use a needle; paralysis of the bladder; incapacity to retain the urine more than a few minutes (two cases recovered to a surprising extent); profuse and too frequent menstruation; scanty and irregular menstruation; extreme menstrual pains; profuse leucorrhœa, with long-continued bearing down of the womb, and extreme pain of the back; habitual constipation; habitual diarrhœa; general coldness of the surface of the body, which has continued for many years; habitually and hitherto irremediably cold feet."

In treating paralysis originating primarily in a lesion of the spinal cord, according to the above method, Dr. C. says: "My first effort is directed to the spinal cord, which I endeavour to restore to a healthy condition by increasing or diminishing the circulation of blood in it. I effect either of these results by directly modifying its temperature. Moreover, as fibres from the ganglia of the sympathetic are distributed to the sheaths and bloodvessels of the spinal cord, it can be influenced by cold and heat not only directly, but indirectly by acting on those ganglia. The restorative power which I have been able to exert in this manner is truly surprising, and, I believe, quite unparalleled by any influence ever exerted by medicine.

"If the paralyzed limb be cold, my next object is to increase the circulation in it; this I do, as already said, by lessening the vaso-motor power of those ganglia of the sympathetic which preside over the bloodvessels of the limb in question. In this manner I find that the circulation in it can be so increased as to make it even very unpleasantly hot.

"The health of the spinal cord having been improved, and the circulation and consequent nourishment of the paralyzed limb having been adequately increased, I then, and not until then, apply galvanism to the paralyzed muscle, if this aid seems needful. When thus applied, after the cord and limb have been acted on as described, the affected muscles prove far more rapidly responsive to the galvanic stimulus than paralyzed muscles usually are, and recover their natural size and strength with proportionate rapidity. But in fact such is the health-giving influence of the process I have described, that the limb will generally recover its healthy condition without the use of galvanism at all.

"The treatment thus described has reference to those forms of paralysis originating in a lesion of the spinal cord; but I have found myself able to exert a curative influence scarcely less potent even when the paralyzing lesion is within the skull, and certainly far more so than can be exerted by any internal remedy."

"To cure epilepsy," he says: "Care must be taken, in the first place, that all sources of eccentric irritation be removed; assured of this, as far as possible I direct all my efforts to accomplish two objects—first, to lessen the excitomotor power of the spinal cord by lessening the amount of blood circulating in it; and, second, to prevent those spasmodic contractions of the cerebral arteries which induce the sudden loss of consciousness constituting the first phase of an epileptic fit. To achieve these objects, I order—

"*First*, and most important, ice to be applied to some one part or to the whole length of the back, and from two to eighteen hours a day, according to the special character of the case under treatment.

"*Secondly*, if the extremities be cold, to aid them in recovering their wonted warmth during the first day or two of treatment—by frequently immersing them in hot water, and by friction, also, in winter, by clothing the arms, down to the wrists, and the legs, down to the ankles, in flannel.

"*Thirdly*, as auxiliaries (1) to take abundant physical exercise, and to use dumb-bells when practicable, or other special means of increasing the respiratory activity and of expanding the energy of the spinal cord; (2) so to cut or dress the hair that it shall not cover or keep warm the upper part of the back of the neck; (3) to exercise the brain daily and systematically in some healthy study, or if this be impracticable, to insure regular mental activity by means of some interesting employment; and (4) to take care that the dress along the centre of the back be light and cool.



If ice be properly applied to the back, the extremities, however cold, may be made quickly warm, so that in many cases the use of hot water may be wholly dispensed with; but in severe cases, where immediate derivation of blood to the extremities is urgently required, and more especially in winter, it is expedient to accelerate the influence of the ice applied to the sympathetic ganglia by the means just indicated."

In a subsequent paper in the same journal (Oct. 17, 1863), Dr. Chapman relates a case of hemiplegia benefited by this mode of treatment, and claims to have benefited by it two cases of diabetes.

12. *Treatment of Delirium Tremens.*—Surgeon Wm. HANBURY, in an interesting article (*Madras Quarterly Journal*, July, 1863) on the treatment of Delirium Tremens, states that "during the last few years, the cases which have come under my observation have been successfully treated by the use of stimulants (brandy and porter) in limited quantities, and concentrated nourishment during the first two or three days of the affection, followed at the end of that time by the exhibition of opium in anodyne doses at night. The small amount of that medicine, when thus administered, which generally sufficed to induce curative sleep, seemed to suggest that its use could be dispensed with, and that the disease might be left—as far as this medicine was concerned—to the efforts of nature alone, and accordingly an opportunity was taken advantage of to test by experience how far the supposition would prove correct.

"An old and very dissipated soldier, who had been previously treated in the way just indicated, suffered from delirium tremens twice subsequently, and on each of these occasions the characteristic symptoms subsided under the use of stimulants and nutritious food, chiefly beef-tea and egg-flip. Somewhat later a sergeant, much addicted to drink, was admitted with dysentery, aggravated, if not caused by this military vice. At the end of two days the symptoms of delirium tremens became developed, and the cure was trusted to nature alone, aided by nutrients and stimulants, and again with a favourable result.

"A short time after the occurrence of the last case, I was consulted regarding the condition of a man, of very drunken habits, affected by the disease, and who had taken several large doses of opium prescribed in the usual manner. He was delirious and in imminent danger of sinking. The face was collapsed and bedewed with a cold sweat, the pulse was small, rapid, and feeble, and the hands tremulous; and as some cases of cholera were under treatment in the hospital at the time, the impression suggested itself that he had already reached the collapsed stage of that disease. A little consideration, however, of the attending circumstances of the case, left no room to doubt that the prostration was due to the unfavourable action of the opium exhibited, and I recommended that its further use should be discontinued, and that brandy and porter, with nutritious diet, should be had recourse to. The effect of this change of treatment was very remarkable, and well calculated to make a deep impression. The pulse rallied, the skin became warm, active diaphoresis succeeded to passive serous exudation. A tranquil manner and calm expression of countenance were substituted for nervous tremour and low delirium; and in about 30 hours after the opium was omitted, he fell into a quiet sleep and awoke, cured, at the end of ten hours.

"The injurious influence of opium, and the sufficiency of the expectant or non 'therapeutic' treatment to effect a cure, were well demonstrated in this case, and I have been informed by the gentlemen who had first to do with it, that the treatment 'without opium,' was also successful in two instances which have since come under his notice.

"But though examples may thus be adduced to prove that opium can be dispensed with, it may well be supposed, in the absence of more numerous facts bearing upon the subject, that the position of a medical man who adopts an expectant treatment must, for the present, of necessity, be a more or less anxious one."

To illustrate the various and uncertain action of opium in the disease Mr. Hanbury gives an account of three different attacks in the same individual, and remarks that in the first the "remedy had no unfavourable effect when given in

a single dose after the symptoms had continued three days, though it is by no means certain that the sleep which occurred at the end of fifteen hours, was due to the action of the opium. In the second, the moderate use of the medicine brought the disease, as usually happens, to a favourable termination. In the third, it utterly failed.

"And in now reviewing the facts, I have no doubt that the injurious influence of opium must be referred to the too early exhibition of the medicine, for we have seen that it was prescribed to allay irritability of stomach two days before symptoms of delirium tremens had appeared at all; and it is by no means certain if its use had been further pressed, that the result might not have proved unfavourable. Again, with regard to the stimulants employed, it seems important to note, and especially for the benefit of those who consider them an essential part of the treatment, that although on the last occasion they were administered from the period of admission, yet the disease showed itself two days subsequently. It would appear indeed that the views of Dr. Pirrie and others, who hold the strange mental aberrations and nervous excitement characteristic of the affection, to be the result of toxæmia affecting chiefly the brain substance, are correct. At first sight, no doubt, it might seem that the access of the disease is the direct effect of the withdrawal of the accustomed stimulus, since it so often shows itself in hospitals, as elsewhere, two or three days after a debauch or course of dissipation; but it must be acknowledged the sequence of events in these instances admits of a different explanation, and resting apparently on physiological grounds. The facts themselves are, moreover, at variance with such a conclusion, for we know that the symptoms often immediately supervene on a state of drunkenness; and Dr. Laycock has shown that the disease may be brought to a successful issue without the use either of opium or stimulants, though the latter would obviously be necessary if the abstinence theory of its etiology were tenable.

"On the whole, then, the result of late inquiry and discussion must be assumed to be a more intimate knowledge of the real nature of the disease. There can no longer exist a doubt that the use of opium at an early period of the affection is not only contraindicated, but that nutrients and rest are more nearly concerned with its successful treatment, than the stimulants with which these remedies have been usually associated. Nor shall we be likely to fall into much error in the event of stimulants being considered necessary in any particular case, if we administer them under the guidance of those general principles which are recognized in the management of other diseases.

"Lastly, with respect to digitalis. It will have been noticed that it acted in the case last detailed, to use a common expression, like a charm, though exhibited at a very critical period of the disease; and were this its invariable effect, the treatment of the affection would doubtless be greatly reduced in simplicity, and many anxieties attending it would be removed. But instances of its unfavourable action have been cited, and it still remains to be shown what are the conditions under which it may be had recourse to with least risk of failure.

"I believe it has hitherto proved most useful when not exhibited at too early a stage of the disease, and it may probably be found, as with opium, that large doses from the first invasion of the symptoms are less safe and effectual than smaller ones given at a later date, and after some time has been allowed for the natural evolution of the disease. Moreover, if it be true as Dr. H. Jones suggests, that digitalis exerts a tonic influence on the heart and increases the contractile force of that organ, so far from being inadmissible in the low state of nervous agitation with muttering delirium verging on coma observed in extreme cases, it should here prove especially applicable. Experience, however, must alone determine this point; but in the meantime, and before resorting to the use of digitalis, it will be considered no more than judicious to adopt means calculated to restore the powers of nature, of a kind somewhat similar to those referred to in the case which has called forth these observations."

---

13. *Treatment of Diarrhœa and Dysentery.*—By Prof. SKODA. Beyond everything stands a strict regulation of the diet. When the intestinal canal is

in a diseased state almost any subject introduced into the stomach acts mischievously, and it is not unfrequently necessary to suspend all food until the intestine is in a condition to bear it. Every solid article *eo ipso* is then mischievous, but even fluids, by reason of their temperature, may act as prejudicially. In most cases taking a few spoonfuls of warm soup, or drinking a mouthful of cold water will immediately be followed by severe colics, and soon afterwards by evacuations. We must only allow lukewarm soups or other drinks, and that only by a spoonful at a time. Of course, these stringent rules only apply to very obstinate diarrhœa, and especially dysentery, for there are many cases of temporary diarrhœa in which the patients continue to eat fruits and the like, and still soon get well. Such cases must, however, not be taken into account, and it is always most prudent at the commencement of a diarrhœa to cut off the supply of food as far as possible, and at all events to prohibit all articles likely to augment the affection.

Opium is the most valuable medicine in diarrhœa, for it keeps the sphincter in a state of permanent contraction, a contraction which is often propagated to the large intestine, and the small intestine is unable to propel its contents far enough to induce the irritation which causes their expulsion. When, by reason of this contraction, these contents are retained, their amount may become considerably diminished by the absorption of the fluid. Frequently, however, there is no spot of the canal which is not so diseased as to prevent such absorption taking place, and then the diarrhœa will continue in spite of the opium and of the contraction of the sphincters. It appears, moreover, that opium, besides its action on the muscular portion of the canal, exerts, by contact, a soothing effect upon the mucous membrane. In consequence of the diminution of the irritation of this membrane, its secretion is probably lessened, as are possibly those of the liver and pancreas. However this may be, opium acts very favourably in profuse secretion from the intestinal mucous membrane. From half a grain to three grains may be given in the twenty-four hours, the best preparation being the *ext. opii aquosum*.

If opium or morphia do not suffice, it must be aided by astringent remedies, by far the best of which, and the most easily supported, is the sulphas zinci. One would have supposed that tannin in its separate state would have proved more useful than the zinc, but this is not the case, and it is much less easily borne. It acts much better and more energetically when employed as a household remedy (*e.g.*, as a decoction of sloe or wild pear tree) than in its separated form; and is then of great service in practice among the poor. Alum is of no use whatever in diarrhœa. Lead approaches zinc in efficacy, but still it is less certain than it. The dose should not be greater than a quarter of a grain, and this may be repeated every two or three hours, and at most every hour. If these means do not suffice, we must have recourse to enemata of salep or starch (with which may be combined one grain of opium or half a grain of zinc) not throwing up more than two ounces at a time. If the clyster does not cause pain in the rectum, and the disease continues obstinate, the dose of the zinc may be increased to two grains. Tannin may be added to the enema, but the zinc is far more serviceable. In the most obstinate cases we must have recourse to cauterization; but this is only the case when there is a diseased condition of the lower part of the rectum. Very obstinate cases of blennorrhœa confined to the anus may be completely cured by the application of nitrate of silver in substance as high as it can be passed. The injection of a strong solution of this substance does not usually attain the same end.—*Med. Times and Gaz.*, Sept. 12, 1863, from *Wien Allgem. Med. Zeit.*, No. 43.

14. *Influence of the Horizontal Position on Bilious Vomiting.*—M. BEAU, in an interesting lecture delivered at l'Hôpital de la Charité, recently published in the *Gazette des Hôpitaux*, the professor pointed out the horizontal attitude as one of the causes of bilious vomiting, and adduced the following cases in illustration:—

A young woman who had been admitted into the Salle Sainte-Marthe for puerperal peritonitis frequently threw up greenish bile. M. Beau caused her to sit up in bed, with her head and shoulders as much elevated as possible, and the

change of position was followed by the cessation of the emesis. Another case precisely similar again occurred in the same ward, the vomiting at once yielding to a change of attitude. M. Beau was last year consulted for a young woman suffering from hysteria, who was confined to her bed, and for a week had been frequently troubled with vomiting of bile. The professor prescribed the sitting attitude, and the spasmodic action of the stomach was immediately checked.

Dyspeptic patients frequently throw up bile of a morning, and not during the remainder of the day. A case in point may at the present moment be seen in M. Beau's wards. For two months, the patient vomited bile every morning on rising, and a week previously to his admission into hospital, he was obliged to take to his bed from weakness, since when he threw up bile several times a day. M. Beau advised him to get up and to remain seated all day; he followed the prescription; nausea ceased, and some degree of appetite has since been restored.

M. Beau opines that the horizontal attitude promotes regurgitation of bile into the stomach; this is possible only when dilatation of the pylorus is present—a morbid condition which plays an important part in the production of bilious vomiting.

15. *Diphtheria*.—Dr. J. WEST WALKER presents (*British Med. Journ.*, May 16, 1863) some interesting views relative to this disease which are worthy of consideration. He maintains that the true nature of diphtheria must be very different from that hitherto received. "We can no longer," he remarks, "consider it to be an acute specific disease, having uniform general and local symptoms. The leather-like formation, hitherto held to be the diagnostic sign, at once loses its significance, if it have to be viewed only in the light of a complication of nearly every ill that flesh is heir to; manifesting itself, it is true, only at certain seasons, such seasons being noted for the extensive prevalence of zymotic diseases generally." He does not deny "that, during a diphtheritic epidemic, a distinct, and, to a certain extent, new zymotic disease may possibly exist, to which the name diphtheria may, though rather inaptly, be applied; all I maintain is, that if such a disease do exist, we have no positive symptom by which to recognize it; and that, as far as its general symptoms go, they only represent a condition of blood-poison analogous to, though possibly increased in severity over, diseases already known—presenting differences of degree more than of kind; and that the so-called local pathognomonic formation associated, as it is found to be, with an endless variety of general symptoms, can no longer be employed as a diagnostic sign."

"If, then," he adds, "a variety of general diseases, alike only in having the common diphtheritic complication, are any longer to be considered as one distinct disease to be called diphtheria, the sooner, for all practical purposes, the name be done away with the better, for it cannot but mislead. It conveys not the slightest notion of the true nature of the affection (or affections); and it renders utterly nugatory all attempts to reduce either diagnosis, prognosis, the question of contagion, or the method of treatment, to a scientific basis. Far better would it be to employ the word in all and every case generally, no matter what the general symptoms may be, wherein the pathognomonic sign presents itself, only reducing it to the rank of a qualifying adjective. We should then speak of cases as diphtheritic, whatever the general symptoms showed the patient to be at the time labouring under. We should be induced to study more closely such coexisting malady, and not being led away by a name, be more likely to form a correct idea of any particular case.

The theory of the nature of diphtheria, to be induced from the foregoing facts and observations, may be briefly stated in the following conclusions, viz:—

1. The characteristic formation is but an external complication, and has no specific relation to any particular state of system.

2. The general symptoms with which this formation is found to be associated are most various; ranging from the most trifling *malaise* to the most virulent septicæmia, and extending through the whole class of acute specific diseases.

3. Possibly, during the prevalence of a diphtheritic epidemic, there may be a

distinct general disease, altogether different from other known diseases; but we have no positive evidence on the subject.

4. Diphtheria, in the sense in which the word has hitherto been employed, is to be looked upon not as one disease, but rather as many diseases alike only in being associated with the common characteristic formation.

16. *Influence of Exhaustion of the Spinal Cord in inducing Paraplegia.* DR. RUSSELL, Physician to the Birmingham General Hospital, makes (*Medical Times and Gaz.*, Oct. 31, 1863) the following interesting remarks on this subject:—

"In the phenomena of syncope as they are ordinarily manifested, the functions of the cerebrum are suddenly suspended; where the syncope is complete, the suspension of these functions is also complete. But although the functions of the cerebrum are those which are primarily and chiefly affected in syncope, the medulla oblongata and spinal cord also participate to a degree which differs in different cases, the difference depending upon the degree of intensity with which the cause producing the syncope operates. The cord ministers to the cerebral functions of sensation and voluntary motion, by conducting the motor impulse from the brain, and the sensitive impression to the brain, and both these functions are of course in abeyance with the suspension of cerebral power. But even in moderate syncope it is very apparent that the special and peculiar functions of the medulla and cord are implicated, whilst in severe cases it is mainly by the larger participation of the organs just mentioned in the disorder that the danger is increased; and to the same cause death, when it occurs, is to be ascribed.

"In syncope produced by loss of blood, for example, the functions of every organ in the body suffer from want of their natural stimulus, and from suspension of the nutritive processes; the lowered force of the heart, the diminished temperature of the body, and the feebleness of the voluntary muscles, must be, in part, attributed to the withdrawal of blood from the capillaries of the system; but other symptoms, which are also very prominent, belong strictly to the medulla oblongata and cord. The panting breathing of the milder form of syncope, and the deep, laboured, and, in extreme cases, diaphragmatic respiration of the severe forms, are related immediately to disorder of the medulla oblongata; whilst the repugnance to food in the slightest, the nausea and vomiting in the extreme cases, and, worst of all, the relaxation of the sphincters, point also to serious derangements in the functions of the cord.

"When death happens, we are able to trace gradual failure in the functions of the medulla oblongata, until they finally cease to be performed, and the respiratory movements sometimes come to a stand, even whilst the heart still continues to pulsate; to use the old-fashioned phrase, death appears to begin at the lungs, but the commencement of the process has, in reality, a more remote seat, viz., the medulla oblongata.

"Analogous to the breathing in syncope, and attributable to a like cause, is the peculiar form of breathing, often spoken of as cerebral respiration, which is met with in connection with such diseases of the brain as have a tendency to depress the energy of that organ, either through disorganization, exhaustion, or stupefaction by poisons. Like the breathing of syncope, it depends upon imperfect performance of the functions of the medulla oblongata; the respirations are interrupted by pauses, during which breathing by the external muscles, at least, is quite suspended; the medulla oblongata is no longer capable of carrying on its work uninterruptedly, but requires the reinforcement of frequent rest. In a little boy whom I saw with Mr. Kimbell, of Knowle, near this town, affected with general inflammation of the brain of a most acute and disorganizing character, the pauses in respiration, for some time before death, amounted to forty or fifty seconds, the face becoming perfectly livid during the intervals; at first, Mr. Kimbell was able to abbreviate these pauses by a dose of brandy, until the medulla ceased to be sensible of the stimulant.

"It is, however, a very striking circumstance in the phenomena of syncope that the medulla oblongata and cord are much less readily affected than the cerebrum, and usually participate to a less extent. The final cause of this

arrangement is obvious; were it otherwise, every attack of fainting must be in danger of proving fatal. A similar observation is made by Dr. Reid<sup>1</sup> in connection with the phenomena of asphyxia: 'The derangement of the functions of the medulla oblongata and of the sensorial functions are not necessarily co-equal in extent, and never in importance, in asphyxia; and this is well observed in some of those cases of death from disease or from narcotic poisons where the process of asphyxia occurs more slowly and gradually. In these it is not unusual to find the sensorial functions nearly or entirely suspended at a time when the respiration is pretty effectively carried on, and it is evident from various facts that the arrestment of the muscular respiratory movements is not dependent upon the suspension of the sensorial functions, but upon arrestment of the functions of the medulla oblongata.'

"But although in syncope the cerebrum, medulla oblongata, and spinal cord are all of them involved, though not to an equal extent, there are cases in which a depressing influence may operate upon the cord alone, without ever travelling upwards to the brain, and produce a condition of exhaustion in the cord in which the brain either does not participate, or participates only as a secondary phenomenon, the result being a state of disorder in the cord analogous to that which is produced under like circumstances in the brain. Among such causes the most direct and powerful are those which act through the instrumentality of the functions of the cord, exhausting it by making a demand upon it for excessive functional activity; and none of these causes have greater power than immoderate sexual indulgence, more especially masturbation. In this fatal vice the venereal passion is carried at each indulgence to the state of highest tension by the aid of the mind, and on each occasion the cord is subjected to the strongest excitement which sensation and imagination in combination can produce, for we cannot regard the mere secretion of the seminal fluid as constituting the chief drain upon the energies of the cord, but rather as being the exponent of the nervous stimulation by which it has been ejaculated.

"But syncope, properly so-called, by no means includes all the phenomena which result from an exhausted state of the brain; the exhausting influence may be applied in different modes, and an important difference will thus be produced in the ultimate course of the case, covering, indeed, by the various modifications induced, the whole of that wide interval which separates the syncope of an otherwise healthy person from the gradual decline of mental and physical power which attends the atrophic softening of the cerebral tissue. Taking the case of hemorrhage, the syncope may be the result of a single copious loss of blood; or, on the other hand, it may occur only after a succession of more moderate bleedings, the final loss, which constitutes the immediate cause of the faint, being often very small. These two cases bear no proportion to each other in the importance of their results; in the former, the patient, unless previously diseased or depressed, will speedily recover, and in the rare cases in which the hemorrhage is carried to a fatal extent, the brain, and, indeed, all the solid organs, will probably not present any great deficiency of blood.<sup>2</sup> But, under the circumstances supposed in the second case, recovery will be a protracted process, perhaps may never occur at all, and the brain and other solid organs will be found, after death, bleached from the absence of blood.

"A parallel may be shown in these respects also between the brain and the spinal cord; the former of the two class of cases just quoted is occasionally instanced by the cord when in a state of concussion, in consequence of a blow or shock inflicted upon it alone. Some interesting examples of this kind of accident are given by Mr. Bryant, in *Guy's Hospital Reports* for 1859. I subjoin a case, however, of a mixed character, in which, either from the intensity of the shock, or more probably from the accompanying injury to the cauda equina, the cord was not equal to the effort of recovery, death was caused by the concussion operating through impairment of the respiratory function. But this form of exhaustion of the cord induced by a temporary cause is also illustrated by the second of the following cases, in which physical exertion or mental effort,

<sup>1</sup> "Physiological, etc., Researches," 1848, p. 38.

<sup>2</sup> Marshall Hall, "Observations on Blood-letting," 1835, p. 131.

in a subject whose cord was already weakened by venereal excitement, brought on repeatedly, a condition of the cord strikingly analogous to the phenomena of syncope on the brain, temporary in duration, and instantly relieved by the recumbent posture.

"In the third case, the wretched habit of masturbation, practised with great frequency and for many years, seems to have acted upon the cord in the same manner as repeated small hemorrhages affect the brain, slowly sapping its energies, until it succumbed soon after the last application of the exhausting influence, probably through the instrumentality of an atrophic process previously induced, as evidenced by the diseased state of the minute vessels.

"The last case which I shall quote will exemplify the operation of a depressing influence upon the cord, when never carried to the extent necessary for producing a marked effect in any single instance, but nevertheless maintaining nutrition at a permanently lowered standard, until at last the tissue of the cord was irretrievably damaged, and permanent atrophy was established.

"It is impossible to over-estimate the baneful influence of sexual excesses, and especially of masturbation, when present, in producing nervous disease, nor the importance of ascertaining their existence. The last-mentioned vice is, doubtless, at the bottom of a great variety of anomalous symptoms, which are presented to us in practice, and probably of not a few hysterical disorders in women. I would throw out the suggestion that some cases at least of what are styled hysterical paralysis are really the result of masturbation, and are produced in the manner which it has been my object to illustrate in these remarks."

We have only space for one of the five cases related by Dr. R. in illustration of his remarks, and select the following:—

*CASE 2. Sudden and Temporary Failure of Motor Power in the Lower Limbs, induced by Mental or Physical Effort, relieved instantly by the Recumbent Posture, in a newly-married Man, previously subject to Emissions.*—Robert B., aged 25. He was a man of tranquil, rather phlegmatic temperament, and good general health. He had not incurred excessive labour either of body or of mind. His habits were most regular. At the time of the illness about to be described he had been married six months.

For a week or ten days before I was summoned to see him he had been away from home. During his absence he had one or two slight attacks of what he called "faintness," with momentary confusion of sight, which, however, subsided immediately. He suffered for three days after his return from symptoms of ordinary catarrh, and was remarked by his friends to be very soon tired, and to look old and out of condition. On the fourth day he endeavoured to walk to his place of business, but after having gone some distance he found his legs fail him, and he was obliged to return in a cab. Next day he attempted a short walk, but soon after starting again became disabled, "turned faint," and was compelled to get back as he could. It was soon after this latter occurrence that I saw him, not being at all aware that anything had happened to retard his recovery from his catarrh.

To my extreme surprise, the patient was led into the room where I was, supported on the arm of his brother, his lower extremities hardly able to support his body, and his feet scarcely raised from the ground in walking. His arms were quite unaffected. There was marked absence of the symptoms of ordinary fainting. His face certainly was pallid, but not extremely so, nor was it at all sunken. His hands were chilly, but his pulse was regular, of fair fulness, and the sounds of his heart were clear and distinct. Respiration was quite unaffected. He had no vertigo nor confusion of intellect. His pupils were natural, and his power of vision entire. There was no abnormality of sensation in the lower extremities, and having lain down the patient speedily regained full power over them, and was able to throw them about freely.

During the following three days he had two other attacks of like character, and threatenings of others, and it is especially to be noted that each attack was related to some nervous effort, muscular or mental. The first three, as stated, occurred during or after a walk; but in each case the patient had been engaged in mental exertion previously. Much less exertion of mind served to induce the subsequent ones—dictating a letter on one occasion, the receipt of a letter

on another. He was obliged to be kept very quiet, and was entirely unequal to the least mental excitement. So long as he maintained the horizontal position his muscular power seemed perfect, but when erect the strength of his lower extremities speedily failed. The symptoms never exceeded the description already given, nor was the upper part of his body ever in the least affected. Micturition and defecation were natural throughout. The bowels were somewhat costive, but were easily moved by medicine. Between the attacks, and whilst the patient lay, there was not the smallest evidence of paralysis, but being erect he was only able to accomplish a few steps in his room, and found standing quite impracticable.

Temperature, circulation, and respiration were normal. His mind was clear, his spirits excellent, and his night's sleep perfect. His appetite also continued unimpaired. His urine was loaded with urates, at first very pale, but deepening in colour as recovery proceeded. It never presented any sediment either of phosphates or of albumen, and placed under the microscope exhibited no abnormal deposit. Repeated examination failed in discovering any fault in the spinal column, or indeed in any organ of the body.

The treatment employed was the strict maintenance of the horizontal posture, complete rest of mind, celibacy, generous diet, and tonics; as recovery took place, regulated exercise. The first decided indication of amendment was afforded by the patient standing to wash himself a fortnight after his first seizure, but it was some days longer before he was able to come down stairs, and some weeks before recovery could be regarded as secure; but for the last eighteen months he has been strong and hearty.

Now, with respect to the cause of this illness, the patient had been recently married; also, he admitted emissions before marriage, and occasionally since. These are the only facts I could obtain, but the patient's manner under my inquiries left little doubt on my mind that he could have given me further information had he been so disposed; in fact, that he had masturbated. He also admitted some languor after intercourse on more than one occasion, and partially acknowledged that the connubial act had been repeated more frequently than was advisable.

17. *Senile Dementia*.—At the end of an elaborate memoir on senile dementia and its difference from general paralysis of the insane, M. MARCÉ, of the Bicêtre, gives the following conclusions: 1. Senile dementia does not constitute a distinct morbid state. It is an *ensemble* of symptoms connected with various organic affections of the brain, and especially with apoplexy and softening. 2. It consists of two orders of symptoms; some affecting motor power, which is more or less abolished; others affecting the intellect, of which the principal lesion is gradual weakening, to which are superadded, as accidents, isolated delirious ideas, or maniacal or melancholic delirium. 3. The disturbances of the motor function are always explained by the existence of organic lesions in the course or at the origin of the motor fibres; while to the impairment of the intellect correspond atrophy of the cerebral convolutions, fatty infiltration and more or less complete obliteration of the capillaries, and atheromatous degeneration of the nerve-cells and tubes. 4. While it offers numerous points of contact with general paralysis, senile dementia may be distinguished from it, in the majority of cases, by clinical signs. In a pathological point of view, both these diseases offer, as a common terminal result, atrophy and fatty degeneration of the nerve-tubes and cells. But, in general paralysis, this atrophy is consecutive to a plastic exudation which, poured out around the capillaries, produces adhesion of the pia mater to the cortical substance, diminishes the calibre of the vessels which it compresses, and thereby presents an obstacle to the circulation of the blood. In senile dementia, on the other hand, the obliteration is a consequence of atheromatous deposits, which are spontaneously produced as a result of advanced age and of a diminution of the assimilative power in the capillaries. These two states, then, differ widely in their nature; one is, if not inflammatory, at least exudative in its origin; the other is an arrest of nutrition.—*Brit. Med. Journ.*, Sept. 19, 1863, from *Gazette Médicale de Paris*, 1 August, 1863.



18. *Urine of Intermittent Fever*.—Surgeon EDW. NICHOLSON gives (*Madras Quarterly Journal*, July, 1863) an account of some investigations on the state of the urine in intermittent fever. His observations show that in that disease there is a great increase in the water, the urea, and the chloride of sodium. "During the cold and hot stages," he says, "the urea is nearly doubled, and the chloride of sodium is increased to five times the normal amount."

"The increase of urea is common to all febrile diseases, and the remarkable increase of water and of chlorine has often been noticed. The principal points to which I would direct attention, as bearing both on physiology and on the pathology of ague, are the disappearance of uric acid during the whole of the day, and the remarkable decrease in the amount of phosphoric acid."

"The history of uric acid is not yet sufficiently complete for me to hazard any conjectures as to the cause of its disappearance."

"But what is especially worthy of attention is the diminution of the phosphoric acid to *one-eighth* of its normal amount, an amount which is not capricious or dependent on accidental circumstances like that of uric acid, but is regular, caused by well-defined and well-studied actions in the human body, and can be deduced from the weight of body, amount of food, work performed physical and mental."

"The phosphoric acid in the urine proceeds from three sources, metamorphosis of osseous tissue, of muscular tissue, and of nervous tissue. Many considerations, amongst which is the great dependence of the amount of phosphoric acid excreted on the work performed by the nervous system, lead to the generally received conclusion that by far the greater part of the phosphoric acid proceeds from the metamorphosis of nervous tissue."

"Proceeding then, as phosphoric acid does, from the metamorphosis of nervous tissue, does not the diminution of phosphoric acid in the urine of ague, show that the disease is characterized by a depression, amounting nearly to paralysis, of some parts of the nervous system? I do not wish to enter too far into theoretical considerations, as those notes are rather intended as 'memoirs to serve for the history' of ague, than as proposing a pathological theory. Without being a *chimiste*, I believe that chemistry and therapeutics are often the best basis for pathological research, and I would observe that the pathology of the urine of ague, the cachexia, often mental as well as physical, consequent on malarious disease, and the class of remedies employed in this disease, all point to a paralysis of some parts of the nervous system. All the remedies used in ague belong to the stimulant section of the class Neurotica—wine, ammonia, zinc, chalybeates, arsenic, quinine, the vegetable bitters, coffee, and perhaps tannin."

"Quinine has for the present dethroned arsenic and chalybeates from their high position in the treatment of ague, although they still continue to be the best remedies in chorea and neuralgia. The *modus operandi* of quinine in ague seems to be its power of augmenting the vital energy of the nervous system, and of enabling it to react against the paralyzing effect of malaria. This property is shared, in a greater or lesser degree, by most of the stimulant neurotics, especially by zinc, iron, and arsenic; the remedial action of these medicines in chorea is clearly to give the nervous system energy to react against the disease and restore the muscles to a proper state of subordination."

19. *Pulmonary Congestion in Children, simulating the Early Stage of Phthisis*.—In a lecture delivered at the Hôpital des Enfants Malades, M. BOUCHUT summed up his remarks in the following conclusions:—

There are cases of chronic pulmonary congestion which perfectly resemble, in their physical signs, tubercle of the lungs in its first or crude stage. These congestions are asthenic, and are readily cured by the use of sulphureous waters; while true tuberculosis is much less amenable to this treatment.

Chronic pulmonary congestion is observed in children as well as in adults; it

<sup>1</sup> I may also mention that I have been informed on the best authority, that albumen prepared in a state of purity by Professor Graham's process of dialysis, does not contain phosphorus.

is the result of acute congestion, of bronchitis, of pneumonia either simple or attendant on measles, of rheumatic or herpetic bronchitis, or of pulmonary apoplexy which has not been entirely recovered from.

A kind of chronic pulmonary apoplexy, characterized by infiltration, destroying the pliability of the lung-tissue, and increasing its density, constitutes the anatomical condition of chronic pulmonary congestion.

Chronic pulmonary congestion may exist alone, and may remain so without the development of tubercle; on the other hand, it is tolerably often only the first phase of phthisis. In the same way as there are chronic hyperæmic states of the glands in children, which may or may not be followed by tubercle, so pulmonary congestion may be found to constitute the entire disease. Chronic pulmonary congestion must, however, always be looked on with suspicion, because it may be the origin of true phthisis.

Whatever be the nature of the induration of the lung—whether it be from congestion, exudation, apoplexy, or tubercle—its effect will be to partially arrest the blood-changes, by impeding the access of air to the pulmonary vesicles, and will produce the same physical signs.

Chronic pulmonary congestion, in scrofulous patients, necessarily leads to phthisis; in plethoric, rheumatic, and herpetic individuals, it remains in the congested or indurated state until resolution takes place.

Nothing has so great a resemblance as chronic pulmonary congestion to the first stage of phthisis; for the physical signs are alike, and the general symptoms are almost the same. The physical signs of chronic pulmonary congestion are, relative dulness of the chest; weakening of the vesicular murmur; prolonged expiratory murmur; some mucous rhonchi; and increased vocal resonance—signs generally held to be characteristic of crude tubercle in the lung. The general symptoms are cough, with or without expectoration; emaciation; and sometimes *malaise*, weakness, or a febrile state.

Chronic pulmonary congestion lasts from a few months to several years; but recovery generally takes place, unless the affection become complicated with tubercle. Pulmonary tubercle is very rarely recovered from: most of the alleged cases of recovery have in reality been cases of pulmonary congestion. The disease is more readily recovered from in rheumatic and herpetic than in scrofulous subjects.

The treatment should consist of cod-liver oil in the winter, and of quinine-wine and arseniate of soda in the summer; and the patient should be sent to the sea-side or to the country.—*Brit. Med. Journal*, September 12, 1863, from *Gazette des Hôpitaux*, 21 July, 1863.

20. *Red Line on the Gums in Phthisis*.—This sign, the importance of which was insisted on by the late Dr. T. Thompson, has been investigated by Dr. J. PICARD. He has found it present in thirty-five consumptive patients, in all stages of the disease; sometimes on both gums, sometimes on one only. In some cases, it extended along the whole length of the gum, while in others it was limited to one or two teeth; sometimes it was continuous, sometimes interrupted. The colour varied, being an intense red, or a violet or rose hue; sometimes scarcely deeper than that of the pallid gums themselves. In most instances, the line was level with the gum; sometimes it was raised; its breadth varied from one-hundredth to eight-hundredths of an inch. Sometimes there was a diffused ill-defined redness, which gradually shaded into the colour of the gum. In some patients, the red line disappeared as the disease advanced. In twelve cases, the gums were in so bad a state that it was impossible to arrive at any result from examination. The line was present in twelve doubtful cases of phthisis; and was absent in fourteen others. It was well marked in fifteen very healthy persons, who were free from cough, and regarding whom there was no reason for expecting that they would become phthisical. Dr. Picard observed the red line also in twenty cases of various diseases, especially typhoid fever. It is also strongly marked in persons who have been taking iodide of potassium or mercurials, or who have slight gingivitis from incrustation with tartar. Dr. Picard derives the following conclusions from his observations: 1. The red line is frequently present in pulmonary consumption, but has no semeiological value,

since it is met with in non-phthisical persons, and is absent in some who are manifestly consumptive. 2. Instead of increasing with the evolution of the tubercular disease, the red line may disappear at an advanced stage of the malady. 3. The existence of the red line in persons in good health does not warrant the prediction that they will become consumptive.—*Brit. Med. Journ.*, Sept. 12, from *Gazette des Hôpitaux*, August 4, 1863.

21. *Direct Communication between the Bladder and Rectum.*—Dr. Wm. PENCE records (*British Med. Journ.*, Ap. 25, 1863) a case of this, in which the feces passed through the bladder and urethra for fourteen weeks.

The subject of it was a "gentleman, 54 years of age, of strongly marked strumous habit, and somewhat hypochondriacal, had, for a series of years, subjected himself to using the strongest purgatives, and employed large injections of water or gruel. His diet consisted solely of milk, eggs, beef-tea and broths, to the exclusion of solids. The feces seldom possessed much consistency. He suffered from bad prolapsus ani, aggravated with internal and external hæmorrhoids.

"He first complained of pains in the left iliac fossa, with slight peritoneal tenderness over the whole abdomen. After the lapse of two or three weeks, the exacerbations of pain became much aggravated towards night; and the patient lost flesh perceptibly. I was called to him during the night, and found him in intense agony, unable to pass urine. A large suppository and the warm bath afforded, after a time, relief. He passed, in my presence, through the urethra, about three ounces of fluid, of a smell and character unmistakably fecal. Two days afterwards, free purulent discharge was set up from the inflamed bladder; the irritability of which viscus was well nigh unbearable. The quantity of mixed fecal and purulent discharge passed with the urine in the twenty-four hours varied from ten to fourteen ounces; it was voided every two or three hours; and the quantity passed each time seldom exceeded an ounce. In the liquid were frequently to be found grape-stones, orange-pulp, and other extraneous bodies.

"Nothing passed *per anum* till eleven days from the first date of the attack, and the dejections occurred subsequently in small quantity at intervals varying from nine to fifteen days. By degrees the purulent discharge diminished, and the constitutional irritation subsided greatly. The patient continued from this date till within a few days of his decease, thirteen weeks later, comparatively free from pain, save at the time when he was emptying the bladder, immediately before and after the passage of the contents.

"A *post-mortem* examination revealed peritoneal inflammation of the lower half of the large intestine, with some purulent effusion into the cavity of the abdomen. There was rigid adhesion between the rectum and bladder throughout. Scirrhus deposit existed in the coats of the rectum, with stricture about the middle third. Immediately above the seat of stricture was an ulcerated opening of the size of a horse-bean, communicating with the bladder, the coats of which were much attenuated and chronically inflamed."

## SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

22. *Treatment of Carbuncle.*—Mr. AUGUSTIN PRITCHARD, in his address on Surgery at the last annual meeting of the British Medical Association at Bristol, presented some interesting practical remarks on this subject, and strongly urged the superiority of caustic to incisions.

"When we consider," he says, "that nearly *sixteen hundred* deaths occurred [in England] in nine years, and that they amounted to three hundred in one single year, and that the vast majority of these were adult men but little beyond the prime of life, and that if the disease had been early and properly treated

most of them might have been saved, we must admit that the subject is one of high importance, and not unworthy of the consideration of our Society, made up as it is of practical and busy men. To say that with an altered plan of treatment none would die, would be to borrow the words of the quacks and advertising doctors, real or pretended; and with them I have no desire to be classed.

"It seems to be accepted by all who have written on the subject, that when the carbuncle has once formed, it cannot be cured without giving exit to a slough or core; and the indications are, therefore, to stop the progress of the complaint, and to expedite the separation of the dead tissue. In a work on surgery, called *Several Chirurgical Treatises*, published in 1676, by Richard Wiseman, Sergeant-Chirurgion to King Charles II., to whose most sacred majesty he dedicated his 'Chirurgical Labours,' the author says that too much bleeding is to be avoided, that incision may be made, and this is the particular treatment which he recommends; but he adds that some surgeons advise caustics, or the actual cautery.

"Another writer of the seventeenth century, Lazarus Riviera, who published a series of surgical cases, strongly recommended caustics.

"For the last fifty years the approved treatment has been by what is called the crucial incision, which is to be made boldly and freely through all the indurated tissues, across from one edge of the red circumference to the other, and again at right angles, so as to free the slough and destroy the inflammation; and it must be allowed, that, in the great majority of cases, this plan has been successful. Other means have, from time to time, been recommended, and some very recently, viz., no incision, but poultices, or iodine (Dr. Rigby, *Med. Times and Gazette*, vol. ii., 1858); or turpentine (Theilman, Berlin, *Med. Times and Gazette*, Sept. 29, 1855); or belladonna (Mr. Oooke, *Med. Times and Gazette*, Sept. 29, 1855); or white paint, or a cupping-glass, or watery extract of opium (Mr. Shillitoe, *Med. Times and Gazette*, vol. i., 1858); or opium plaster (Gutzeit, *Dublin Hospital Gazette*, April 1, 1859), or subcutaneous incisions (Mr. French, *British Med. Journal*, vol. ii., 1862, p. 52); or lead plaster (Mr. Hunt, *Association Med. Journal*, July, 1853); or acid nitrate of mercury (Mr. Startin); or some other novelty, none of which have, I believe, survived the period of their first publication in the journals.

"The caustic plan has been revived, and with the sanction of well-known surgical names. Dr. Physick, of Philadelphia, seems to have been the first to bring it once more prominently before the profession; and in May, 1857, the present Mr. B. Travers published (*Lancet*, vol. i., 1857) two or three very interesting and convincing papers on the subject, and it was then that my attention was first drawn to the caustic treatment, before which time I had invariably marked a deep cross on the carbuncles, as my neighbours did. In Nov., 1856, Mr. Higginbottom published (*Lancet*, vol. ii., 1856) a short but very comprehensive little article, recommending a plan very similar to that which I am about to advocate. Mr. Syme, on the other side of the question, says, in his ordinary very distinct mode of expression, 'the application of caustic is the extreme of absurdity.'

"I must, at this point, proclaim myself an unflinching advocate of the caustic plan of treatment in a slightly modified form, and a strenuous opponent of the crucial incision. The caustic to be preferred is the stick of potassa fusa, and it is to be used freely but carefully in the following way. In whatever stage the carbuncle is, the potash is to be applied and rubbed in freely in the centre, until an eschar is fully formed. In the earlier stages, if the skin is still unbroken, it must be used for several minutes, until the death of the central portion is insured, and the size of the slough to be made varies of course according to the size of the carbuncle. In general terms, the diameter of the skin to be destroyed should be a fourth, or even a third, of the diameter of the indurated or inflamed mass. This is generally sufficient to stop the progress of the disease: but it is far better, at the same time, to use some application of an opposite nature to the circumference, and for this purpose the nitrate of silver in substance, or in strong solution of two scruples to an ounce, may be used, according to Mr. Higginbottom's plan, or, as I prefer it, a strong solution of iodine in collodion, which has a very excellent effect in destroying the erysipelatous element of the disease. I believe that my father was the first to use a

strong tincture of iodine for erysipelas of the head and face; and the *pigmentum iodinii* of the Bristol Royal Infirmary, made by the solution of forty grains of iodine in an ounce of rectified spirit, has now come into general use in such cases.

"We have lately added to our Pharmacopœia here a '*Pigmentum iodinii c. collodio*,' made with a scruple each of iodine and iodide of potassium to the ounce of collodion, and with very favourable results, for erysipelas, whether idiopathic or following surgical operations; with the exception that, if used on the face, the eyelids must be left intact, for it causes so much contraction of the surface, that there is danger lest the patient should not be able to shut his eyes afterwards, and this accident I have seen before now.

"Mr. Higginbottom, in his paper quoted above, speaks most truly of the nitrate of silver as a preservative, and the potash as a destructive agent, and seems to have found, as I have, that this fact is not sufficiently recognized or appreciated. The contraction of the collodion film acts very beneficially on the capillaries of the skin, and the particular effect of the iodine is more continued, because of the mechanical adhesion of the collodion to the surface. With this pigment the indurated part is to be painted daily, without waiting for the first layer to come away, and the relief from it after the use of the potash is very marked. Poultices are to be avoided altogether. A dressing of the resin ointment, mixed with an additional quantity of turpentine or some camphorated spirits, is to be used daily over the surface, and in most cases no change need be made until the patient is cured.

"The other points in the treatment are the greatest attention to cleanliness in the dressings, and the removal of the discharges, which are easily insured by warm bathing and cotton wool; and the strictest care is necessary not to interfere with the slough by any dragging or cutting, so as to cause an effusion of blood.

"To a carbuncle which has begun to slough by the central apertures, the caustic is to be applied in the same way, and the effect is to turn the sloughing skin into a gelatinous black mass, which melts away and is gradually removed with the dressings, the iodized collodion pigment being applied around the circumference as before. By this plan of treatment the slough certainly separates earlier than by the incision, and comes away in a half dissolved state; and the disease being checked at the margin, contraction of the entire sore goes on from the granulating process within, frequently for many days before the more solid part of the eschar has been quite thrown off from the living tissues.

"The chief advantages which we claim for this plan of treatment, as contrasted with the incision, are two in number; viz., firstly, and principally, the safety of the patient; and, secondly, the rapidity of the cure.

"1. *The patient's safety*; the proofs of which we may conveniently examine under the same heads as those used before in describing the perils of the disease, or the causes of mortality. The risk of hemorrhage, from which some patients die, is altogether done away with. At the time of the application of the caustic, when the skin is beginning to slough, a few drops of blood escape sometimes, but they are at once dissolved by the caustic, and this is the only blood shed in the progress of the case; and, if the potash is applied still earlier in the treatment, not one drop is lost, and this is no slight advantage.

"Exhaustion, as a cause of death, is rendered much less probable, partly because no blood is lost, but principally because we imitate and support nature's effort by making an artificial slough, of comparatively small size, and the suppuration is only what is required for the separation of the dead skin and cellular membrane, the further secretion being very much lessened by the early loosening of the slough and the application of the iodine paint.

"Thirdly, I believe that pyæmia or purulent infection, the most frequent cause of death and the most hopeless complication, will not occur by this method of treating the disease.

"I have already stated my conviction that pus finds its way into the open mouths of the divided vessels, and thus the system is contaminated. A cut through the hard, brawny tissues must leave many vessels held open mechani-

cally, in the midst of the suppurating and sloughing membranes, in the state of all others best adapted to cause the entrance of the poison.

"The only two fatal cases of carbuncle which I have been ever called to, were of this nature. Both were clergymen, middle-aged, well nourished, and in fair health at first; and in both the treatment had been by incision. In one the sloughing process had never been completed; in the other the wound had even healed, and become firm, and the patient sank from numerous extensive formations of pus in the joints and cellular membrane, in various parts of the body.

"A medical friend of very large experience in India, where the natives, soldiers, and others, were always under his care, and where carbuncle is a very common disease, informed me some years ago that he had long given up the incision because of the mortality from pyæmia, and that his treatment has been much more successful since.

"Seiche treated eleven patients in the ordinary way with incision, and six died; five of them from pyæmia. He treated twelve with collodion, and all recovered.<sup>1</sup>

"The risk of death by the extension of the inflammation to the deeper and more important structures of the body, or by tetanus, is nearly the same whatever plan of treatment is adopted; but these dangers are not great, because of the extreme rareness of these accidental complications. Whatever difference there is must be in favour of the caustic method, because the slough is more speedily loosened.

"2. *The Rapidity of the Cure.* The second advantage which I claim for the caustic, viz., shortening of the time required for the cure, although not equal in importance to the safety of the patient's life, is nevertheless no slight one. It is not quite so easily capable of absolute proof; but I have as little doubt about it as about the others.

"The explanation of the case is sufficiently easy. Important time is saved at first, because the slough is formed more quickly. A cut will let free the tissues, and check the inflammation and the progress of the disease at the circumference; but whether the skin has sloughed already or not, the central part will, in almost every instance, die, and have to come away; and the special chemical effect of strong caustic alkali upon the tissues of the part, in whatever state they may be, whether living or dead, saves the patient's time in another way. As I have before noticed, the potash is a powerful solvent of the tissues: pus, blood, and the gelatine of the skin and the fat, are liquefied and dissolved by it, if used in the concentrated form of potassa fusa; and the slough already formed and the skin which is about to give way become semifluid, and are washed away with the secretion; the solid elements remaining being the white and yellow fibre of the skin and areolar tissue, with pus, coagulated lymph, and some of the cellular membrane and fat which the caustic has not been able to reach.

"It is important to remember that the action of the remedy upon the part to which it is applied, is chemical entirely; and that the good effect upon the rest of the disease, is from the early formation of a slough which is easily broken down in its substance.

"The resulting sore is undoubtedly much smaller by this treatment. After incision, the quadrants of skin partly slough, and are partly retracted, so that ultimately the sore is circular, with a diameter of the length of the cuts; whereas by the potash and iodine plan the centre gives way, and all the rest of the skin retains its vitality and its former position; and even though the edges appear at first to be undermined, by the time the slough has come away the greater part is generally filled up by granulations; and, as I have before said, contraction of the whole sore has commenced.

"To complete my remarks, I must shortly allude to the general treatment. The indiscriminate use of stimulating food and drink is to be avoided. Some gentle aperients are required at first; and afterwards the medicine best suited

<sup>1</sup> Year-Book of Medicine and Surgery, 1862, page 165. The mortality was excessive according to this statement—six dying out of twenty-three. The mere application of collodion seems an inefficient remedy.

for the majority of cases, is a mixture of ten grains of chlorate of potash with ten minims of the tincture of the sesquichloride of iron. Food in a nutritious and fluid form is required, and occasionally wine or beer, if the discharge is very free, and the pulse seems to require it; and if there is much weakness with sweating, quinine and acid, and perhaps an opiate at night.

"Mr. Higginbottom, whose name deserves all honour, for he is a staunch and honest opponent of the vices of the alcoholic treatment, makes the remarkable and very satisfactory statement that he has never prescribed alcohol in any form for this malady, and that he never saw a fatal case.

"The question of pain will arise, and may with some be an element in the determination as to the plan of treatment; but it has no weight at all compared with the question of the patient's safety. When a large surface is touched with the caustic freely, there is sometimes much pain; but in those cases a long incision would be necessary, and patients dread the caustic much less than the knife; and I have used the freezing mixture of pounded ice and salt, applied for five minutes to the surface, with the effect of almost destroying the feeling without interfering with the chemical action of the alkali. The advantage in this respect is all in favour of the caustic; and the freedom from pain which the patient experiences, as soon as the first burning has passed, is very marked.

"I have introduced no accounts of cases, although I have treated many in each way; for their usual progress may be satisfactorily described in general terms.

"In conclusion. Although the plan is not new, and although it has been urged, as I have before said, by higher names than my own, and although its advantages are so striking and intelligible, it is very clear that the idea has not taken root effectually, as it ought to have done; and no opportunity could offer itself more likely to bring it prominently before the profession, than that which I now take of making it the subject of the surgical address before this assembly."—*British Med. Journal*, Aug. 8, 1863.

23. *Operative Surgery in Children*.—M. GUERSANT gives us (*Bull. Gén. de Thérap.*, 15 March, 1863) the following as the conclusions he has arrived at in regard to the preparation of patients, the performance of operations and the after treatment, derived from an experience of twenty years as surgeon to the Children's Hospital, Paris.

*Preparation of Patients.* Certain malformations, especially imperforation of natural openings, must be operated on at birth without preparation. The treatment of others, which do not interfere with the performance of the vital functions, and the child's growth, may be deferred to a later period: such as club-foot, phimosis, webbed and supernumerary fingers, complicated hare-lip, cleft palate, etc. In general, operations, even those which it is thought advisable to perform at an early date, are more likely to succeed if delayed a fortnight, three weeks, or a month, when there has been time for ascertaining whether the child thrives well, than if performed two or three days after birth. In the meantime, if there be danger of smallpox, the child may be vaccinated before being operated on.

If the necessity for operation be not urgent, it is a principle of good surgery to choose for its performance, both in hospital and in private practice, a period of the year when the smallest amount of disease prevails, and especially when there is no epidemic. There will rarely be opportunity for operating in the spring, as has been hitherto advised; in general, the months of June, July, August, September, and even October, are to be preferred, as ordinarily presenting a more regular and less variable temperature than prevails at other seasons of the year. In these cases, the little patients should be vaccinated if this have not been already done; and even those who are fifteen or sixteen years old should be re-vaccinated as a precautionary measure. If this be not done, children who are in a fair way of recovery after operation may take the smallpox and die. M. Guersant performed disarticulation of the thigh, for osteosarcoma of the femur, on a child five years old; the wound was almost cicatrized

and recovery seemed certain, when the patient, who had not been vaccinated, was seized with smallpox, and died thirty days after the operation.

It is of the greatest importance, before determining on an operation, that the surgeon should examine the patient with the most scrupulous attention, in order to ascertain that there is no internal disease or peculiar condition which may endanger the success of the operation and the life of the patient. Thus, it is extremely useful to know whether the child be liable to convulsions, or of the hemorrhagic diathesis. M. Guersant has several times met with evidence of this diathesis in children. In one case of the kind, he was obliged to defer excision of the tonsils in a little patient who had purpura hæmorrhagica; and it was not until a course of astringents and iron had been persevered in for two months that he decided to operate; and even then the excision was attended by alarming hemorrhage. He advises that children subject to hemorrhage should be prepared for operation by the internal use of perchloride of iron for a week at least. In another case, a child from whom he excised the tonsils died of convulsions, to which it had been subject.

Certain preparations, according to the operation to be performed, are often indispensable. Thus, before opening an imperforate anus, the bladder must be emptied; before performing lithotomy, the rectum must be unloaded; and, in all operations, digestion must have been completed, and the bowels as freely evacuated as possible.

As to the *moral*, there is not much to be done as regards infants. Some children, however, may be led to submit to operation by being made to understand that if any pain is to be inflicted on them, it is for the purpose of curing them. Most, however, must be operated on by surprise. In all cases, it is indispensable to have efficient assistants. If it be proposed to use chloroform, this should be sometimes attempted before the day of operation.

*Performance of Operations.* In a tolerably large number of cases, anæsthesia may be dispensed with. In opening abscesses, sounding the bladder, examining the rectum, and removing small polypi from that region, M. Guersant generally operates without chloroform. In some operations the use of this agent must be rejected, as in very nervous and impressionable individuals. In some such cases, local anæsthesia may be produced by the application of chloroform, or, still better, of ice; while in other instances, as in excision of the tonsils and tracheotomy, no anæsthetic can be used.

There are many circumstances in which the use of chloroform is strongly indicated; and, after having employed it in the cases of 5000 or 6000 children, M. Guersant sees no reason to regret having done so. He uses Charrière's instrument; the anæsthetic may also be given on a sponge having a sufficiently large opening to allow the air to pass freely. He has never had to lament an accident from the use of chloroform. Very early age is not a contraindication to its use; he has given it to very young subjects; among others, to two children less than four months old, on whom he operated for strangulated hernia. He has often used chloroform to render children insensible during examination; as when they refuse to open the eyelids in diseases of the eyes, and in certain very painful cases of coxalgia. He advocates especially the use of chloroform in operations which give rise to much pain, and at the same time demand precision of execution, such as lithotomy.

The performance of an operation on a child demands the most perfect knowledge of anatomy on the part of the surgeon; for, the parts being of small extent, the incisions must be limited to the strictly necessary dimensions. As examples of the necessity of attending to this precept, he mentions tracheotomy and lithotomy in children two years of age; and says that it is plain, although many ignore the fact, that operations are more difficult in children than in adults. In certain cases, the precept which recommends the surgeon to operate slowly must be departed from; for children endure pain for a less time than adults, and losses of blood are generally more dangerous in them. Thus, the tonsils must almost always be removed very rapidly. In some cases tracheotomy must be performed quickly, in order to prevent the patient from dying under the surgeon's hands, especially if the veins have been opened and pour out much blood.



*Consecutive Treatment.* The first point to be attended to is the ligature or torsion of vessels; and when only a small number of vessels have required to be tied or twisted after an amputation of one of the large limbs or after extirpation of a tumour involving a great loss of substance, M. Guersant advises that the dressing should be delayed for half an hour or an hour after the operation. He says he has always followed this plan with advantage. This precept, which was given by Dupuytren, has the advantage of allowing time for the re-establishment of the circulation, and obviates the necessity of removing the dressings to arrest hemorrhage which has come on after the application. If it be necessary, after certain operations, to plug the wound with perchloride of iron, this should be well diluted with water, to avoid sloughing.

M. Guersant, following the advice of Dupuytren and Lisfranc, almost always renews the dressings on the day after the operation. The removal of the charpie and lint, the bandages and sutures not being interfered with, prevents the danger of many accidents. Erysipelas is prevented, by the removal of charpie impregnated with blood and serosity; pus, if it have formed, is allowed to escape from between the lips of the wound; and if the edges of the wound have been strangulated by the sutures being too numerous or drawn too tight, they can be removed or loosened. If there be erysipelas, M. Guersant has often seen benefit derived from the application of collodion. This, with the internal use of tincture of aconite, sometimes prevents purulent absorption—a very rare accident in children, but which occasionally occurs.

If the wound become pale and gray, the application of charpie, soaked in solution of chlorinated soda is very useful; and the application of pure lemon juice has, in M. Guersant's hands, given a healthy aspect to an unhealthy looking wound.

General treatment is often of still more importance than local treatment. Usually, if there be no convulsions (an accident which rarely occurs even after the most severe operations), or if there be no special contraindications, a nutritious diet should be allowed from the day of operation. Whenever it is possible, infants should be put to the breast from the first day, rather than be fed from a bottle; they should be allowed to suck as much as they desire, at intervals of two hours. For other children, the food should at first be liquid, and consist of milk and beef-tea; after the first day wine may be given. A return should be gradually made to the child's original food, to which may sometimes be added chocolate, coffee, quinine, and other tonics. This regimen is indispensable, unless consecutive internal disease set in and demand on the part of the surgeon the amount of medical knowledge necessary for detecting and properly treating them—without which there is no success in surgery. We must, M. Guersant says, never forget that the operator must be a physician before operation, a surgeon during the performance, and again a physician to terminate and even to bring to a successful issue many surgical operations.

Finally, all the means which have been here described may fail, if the hygiene of the patients be neglected. Thus, all things being otherwise equal, children who are operated on in the town in the homes of parents in good circumstances, and who reside in well ventilated and warmed rooms, according to the indications of the case, are in better condition for recovery than those who are operated on in hospitals, where numerous patients are collected in one room, of which the air is, in spite of all that can be done, more or less vitiated.

*24. Tracheotomy and its Employment in Diphtheria.*—MR. HENRY SMITH read before the Medical Society, London (Oct. 19, 1863), a paper on this subject. He commenced by referring to the different manner in which tracheotomy was estimated in the present day compared with some years since, and quoted the words of Sir Charles Bell, who stated in his work on Operative Surgery that he had never once performed the operation. Of late years it had taken a high place in our surgical means, and had proved very successful in saving life in instances where death would otherwise have speedily resulted; and surgical writers now spoke with confidence of it, instead of treating the subject with doubt and hesitation. Even in croup the operation, which a few years since was hardly deemed warranted in this disease, had latterly been so successful

that it might be recommended in certain instances with confidence; but it was in reference to inflammatory affections of the throat in the adult that he was going to call their attention to it, for it had been found that in such cases the operation was eminently successful. After alluding to the various diseases of the throat and air-passages in which tracheotomy was applicable, Mr. Smith drew particular attention to two conditions wherein the operation was most useful and most beneficial. The first referred to was that state where there had been for some time a chronic inflammation of the larynx going on, and then a sudden aggravation threatening death from suffocation had taken place. Here tracheotomy, if well executed and not put off to late, would prove eminently successful. Some very interesting cases were related as illustrations. The other form of disease was one in which there had been syphilitic mischief in the throat for some period, and a sudden attack of dyspnoea had come on. Here also tracheotomy would be eminently successful, and that in two ways; for it would not only immediately arrest death, but time would be allowed for the introduction of those remedies into the system which would counteract the syphilitic poison, and thus cure the disease. A very successful case of this kind was narrated.

The author then made especial reference to the use of the laryngoscope in instances where tracheotomy was performed, stating its great value as a means of determining the exact nature of the disease in the larynx, and thus showing when and how far an operation was called for. A laryngoscopic examination was also especially useful in cases where the operation had been performed, for by it we should be able to learn the progress of the case; and more especially would this examination assist us in deciding the question as to the removal of the tube—often a very difficult thing to decide. Cases were mentioned by the author wherein the use of the laryngoscope had been attended with great advantage both before and after the operation.

With regard to the employment of tracheotomy in diphtheria, Mr. Smith admitted at once that this was a difficult and unsatisfactory question; for, although the operation had been tried on many occasions, the want of success attending it had been so marked as to lead us to put little faith in it. The reasons for this want of success were considered at some length. The most obvious one in his opinion was, that the patient was suffering, not from a local complaint, but from a highly poisoned state of the blood; so that even if relief were given for a period by the introduction of air, the patient would sooner or later relapse into his former poisoned condition. He had been called to cases in which, for this reason, he had refused to operate; and he was sorry to say that in those cases where he or his personal friends had performed tracheotomy in diphtheria, death had almost invariably resulted. Nevertheless, if there was the least chance of the operation saving life, he thought it should be performed; and that there was this chance was proved by a case narrated lately by Dr. Hillier, where undoubtedly the patient—a member of the medical profession—was snatched from the jaws of death by the operation, performed when he was rapidly sinking from diphtheria.

Mr. Smith concluded his paper by some observations on the best mode of performing tracheotomy. In the last paper which he had read before this Society, he had considered the dangers and difficulties of the operation somewhat fully, and the best mode of meeting them. After having had a large experience of this operation at every age and under every condition, he was inclined to the opinion that tracheotomy was thought too lightly of by many, especially by those who had merely made themselves acquainted with it in the anatomical theatre or deadhouse. For his own part, he had often met with great difficulties in its performance; and he believed the best way of avoiding them was to use the simplest instruments—viz., a sharp scalpel and a hook, to abjure all those injurious contrivances which were intended to facilitate the operation; and, above all, taking due care to get out of the way of important parts, to cut rapidly down upon the trachea instead of making a slow and cautious dissection.—*Lancet*, Oct. 24, 1863.

25. *Mucous Cyst on the Laryngeal Aspect of the Epiglottis, seen by the Laryngoscope and successfully treated by Incision.*—MR. A. E. DURHAM related to the

Royal Med. and Chirurg. Soc. (Nov. 10, 1863), the following interesting and probably unique case of this :—

The patient, a very intelligent lad, aged eleven years, was admitted into Guy's Hospital, under the care of Dr. Wilks, on June 10th, 1863. He had for three years suffered from gradually increasing impairment of voice, and difficulty of breathing and swallowing. On admission all his symptoms were very severe: he complained of pain, increased by pressure, about the larynx; he did not breathe freely; his voice was reduced to a low whisper; solids seemed to stick in his throat, and he could only swallow liquids with difficulty. During the night of the 14th he was seized, as he had previously been on several occasions, while asleep, with a very severe attack of dyspnoea. Tracheotomy was upon the point of being performed, but was delayed by the desire of Dr. Wilks, and on the following morning Mr. Durham was requested to make a laryngoscopic examination. On doing so, the epiglottis could not be distinguished in its normal form, but instead there appeared a large, round, tense tumour, projecting backwards and downwards, and completely covering in and concealing the glottis. On either side and rather behind this, portions of the aryteno-epiglottidean folds could be seen, swollen and apparently cedematous. The tumour could be just reached by the finger. Feeling certain that it contained fluid, Mr. Durham, with the concurrence of Dr. Wilks, at once proceeded to make an incision into it by means of a long, curved, sharp-pointed bistoury, partially surrounded with sticking-plaster. The incision was followed by a sudden gush of thick glairy mucus, mixed with a little pus and blood, which, on subsequent examination, proved to be precisely similar to the contents of a ranula beginning to suppurate. All the patient's symptoms were at once relieved, and in the evening he was singing in his bed. In the course of a few days he was perfectly well. Examinations were made from time to time, and it was interesting to watch the gradual subsidence of the oedema, and the return of the parts to their normal condition. The patient was last examined nearly four months after the operation; he was in every respect well. There was no appearance of the cyst (for such evidently was the nature of the tumour,) but the cicatrix of the incision could be just distinguished on the lower part of the laryngeal aspect of the epiglottis.

26. *Amygdalotomy*.—M. DEROUBAIX cannot agree with Begin, that this is the simplest operation in surgery, for even with instruments which render it of so much easier performance than heretofore, it still sometimes presents difficulties and danger when certain precautions are neglected. It is of importance to bear in mind that the tonsil is not an exactly defined organ, like a more perfect gland, but has a tendency to become confounded by a kind of transition with the glandular systems of portions of the neighbouring mucous membranes. In the normal condition, it makes but a slight projection between the pillars of the velum; but in the case of pathological change, the two tonsils may touch each other—respiration, phonation, and deglutition becoming impeded. It is generally in predisposed subjects, as the result of repeated irritation, especially that arising from the action of cold and damp, that an indurated exudation into the follicles, and a sufficiently hypertrophied condition to call for the intervention of surgery, are observed. It is rare, indeed, when the affection has reached this stage, that any local treatment will spare the necessity of an operation; and the author has frequently in vain had recourse to the whole train of remedies, during a prolonged period, without obtaining any diminution in the engorgement or alleviation in the symptoms. It is far better in such cases to employ the appropriate treatment, without teasing the patient by these indifferent measures. In reply to the question whether the removal of the tonsils does not give rise to serious inconvenience, it may be said that to attempt their total ablation would be to risk the perforation of the wall of the pharynx and a lesion of the carotid. In fact, a little more only than the portion which projects beyond the level of the pillars is excised; and this is done without any inconvenience, for all the follicles being independent of each other, the same consequences are not to be feared which would result in the case of a more complicated gland, the different portions of which have mutual relations with each other. Almost always, too, the cure effected is permanent; and it is only

in very rare cases that the engorgement is, after some years, reproduced. If, however, by reason of faulty instruments, a mere superficial slice of the tonsil or a portion of its upper or middle part be removed, relapse will follow without much delay. It is highly important to observe, that while at the upper part the pillars of the velum oppose a continual barrier to the tonsils, nothing arrests their development below; so that their chief volume, when enlarged, lies often in this direction. But as this region is not displayed when the mouth is opened and the tongue only moderately depressed, the portion of the tonsil which is then made visible is alone removed; and a part of the diseased tissue below remaining untouched, a relapse is certain to occur. It is from having at an earlier period met with these relapses, due to incomplete operations, that M. Deroubaix turned his attention to the improvements of the instruments employed in tonsillotomy. He rejects the bistoury as not only difficult, but even dangerous in its employment. In fact, he has witnessed a case in which the carotid was fatally perforated. The amygdalotomes formerly in use all erred in consequence of the plate for the reception of the tonsil having its large diameter continuous with the axis of the instrument, while the tonsil is developed in the vertical, and therefore contrary direction. M. Deroubaix first contrived an instrument having its plate placed perpendicularly; but finding it difficult to introduce this low enough in the pharynx to embrace all the diseased tonsil, he so changed the disposition that the plate of the instrument is not perpendicular to the handle but oblique, forming with it an open obtuse angle. This easily embraces the whole of the surface to be removed. The operation can be executed with celerity and certainty. It should never be resorted to during the inflammatory stage; for not only is it then very painful and liable to consecutive accidents, but the tissue of the gland is not firm enough to resist the traction. Although tonsillotomy is usually of easy execution, great difficulty is sometimes produced by the terror or indocility of the patient. This is often only to be overcome by prolonged waiting and watching for the opportunity which the patient, by opening his mouth, at last gives of seizing the tonsil with promptitude. Sometimes a patient who has submitted to the removal of one tonsil, obstinately refuses to allow of the second being removed. Such a case is best met by having two tonsillotomes ready. Immediately that the first tonsil has been excised, almost before the patient is aware of it, the second instrument may be applied. When the conformation of the mouth renders the isthmus difficult of access, it is preferable to depress the tongue by means of the amygdalotome itself, than to employ any special instrument for depressing it, which only complicates the operation. M. Deroubaix has never met with hemorrhage after this operation that could not be controlled by a simple vinegar gargle.—*B. and F. Med.-Chir. Rev.*, Oct. 1863, from *Presse Méd. Belge*, Nos. 31, 38.

27. *Tetanus caused by a Wound of the Hand, treated by Section of the Median Nerve.*—Dr. FAYRER reports (*Indian Annals of Medical Science*, April, 1863) the following interesting example of this:—

"A young Brahmin, named Ram Narain Chatterjee, aged 23 years, was admitted on the morning of the 3d November with a painful condition of his left hand. A week ago he ran some splinters of bamboo into his hand at the root of the thumb. They penetrated, broke off, and remained lodged in the palm of the hand just by the ball of the thumb. Suppuration followed, and, with it, much pain.

"He had had, also, curious spasmodic symptoms during the last three days; he could close the fingers of the injured hand, but when he opened them they were again spasmodically contracted and twisted. The thumb and three fingers supplied by the median nerve only were implicated. He had no spasm of the arm, but he had pains in the shoulder of that side and partial closure of the mouth which opened sufficiently to introduce the handle of a table knife. He was in good spirits, notwithstanding his precarious condition, and he seemed to have enjoyed good health before the accident.

"I made an incision into the palm of the hand and extracted a splinter about an inch in length; he expressed himself relieved after the operation. Ordered him an enema of castor oil and turpentine, and two grains of opium immediately.

"Nov. 4. He is not so well, spasms continue in the hand; has had spasm in the back and some rigidity of the jaw. He slept, but was frequently disturbed by their recurrence. The slightest touch throws the arm back, and jaw into a state of spasm: Ordered tinct. cannabis Indica min. x, Chloroform min. x, every four hours. Enemas of turpentine and oil every six hours. Diet of milk and sago, or whatever he will eat (he is a Brahmin). Poultices, with opium, to the wound.

"On examining the wound closely, I found and removed another small splinter. As the seat of irritation seemed to be in the median, the splinters being impacted just where it divides into its digital branches, I determined to try what effect section of the nerve above the injury would have. I accordingly placed him under the influence of chloroform and divided it just above the annular ligament. The immediate result of the operation was not striking, very little if any change in the condition of the arm followed. I saw him again six hours after; he said that the fingers were somewhat benumbed, but he was in such a state of general uneasiness, from pain in the hand and arm, that he hardly knew of any change except that the contractions of the arm were much less frequent and severe than before.

"He seemed quieter.

"The hemp and chloroform mixture, the opiate poultice, and night opiate were continued.

"5th. He is better this morning, slept pretty well, the rigidity in the neck and jaws is gone. The spasms in the hand and arm continue, but with less violence, and persistence.

"Continue the hemp and chloroform, the poultice, and opiate at bedtime. Enema every six hours.

"6th. Has a good deal of pain in the arm, but the spasms are much less frequent. The hand remains contracted, the fingers firmly bent into the palm. Continue the same treatment.

"7th. Condition generally improving; no pain in the back or jaws. He slept better last night. Continue the same medicine, local applications and food.

"8th. Pain in the arm, and rigidity of fingers less, no return of trismus, the wound in the forearm, where the nerve was divided, is beginning to suppurate.

"9th. He continues to improve. Discontinue the hemp and chloroform. If the bowels are confined give an aperient. Good diet. Dress the wounds with a solution of opium.

"12th. Fresh collection of matter having formed in the hand, made incisions, and, with the pus, removed another splinter, but there has been no return of the spasm. The fingers continue bent into the palm, but less rigidly than before.

"It is needless to go on reporting the daily symptoms, he improved steadily, the hand remained for some time contracted, long after all spasm elsewhere had ceased. But it gradually relaxed, and when he left the hospital on the 28th November, he could with slight effort straighten the fingers, and was regaining the use of them. The wounds in the hand were healed, and that in the wrist was cicatrizing. He had regained much of the lost power, and the hand promises to have much of its former utility.

"It may be said that the hemp, opium and chloroform were the real remedial agents in this case; I do not think so, and those who have seen and watched the progress of traumatic tetanus in this country, and know its obstinacy in resisting all internal remedies, will, I think, incline to agree with me that division of the nerve arrested the mischief. It was done shortly after the tetanic symptoms set in, and before either a generally inflamed condition of the whole median trunk could have been developed, or before that excited state of the cord, which is probably induced in severe and fatal cases of tetanus, had been excited into action. I hope the mode of treatment may meet with further trial; it has, at all events, as much of reason as empiricism to recommend it."

28. *Operations for Strangulated Hernia on very aged Patients.*—Mr. HENRY SMITH relates (*Lancet*, Sept. 5, 1863) a case of strangulated hernia in a female 83 years of age, successfully operated on. Mr. T. M. KENDALL relates in the same Journal (Oct. 10) a perfectly successful operation performed by him on a

female aged 82 years, and Dr. N. J. MACKINTOSH reports an equally favourable result in the case of a female in her 89th year (*Lancet*, Oct. 10, 1863).

29. *Sutures in the Operation for Hare-lip*.—M. GIRALDÉS has for some time used, in treating cases of hare-lip, a simple suture of silver wire. The result, he says, has surpassed his expectation; and hence, whatever be the age of the child, or the amount of deformity, he uses the simple in place of the twisted suture. The advantages which he recognizes are the following: 1. The silver wire suture allows of a more regular and exact coaptation of the lips of the wound; 2. Its application is easy; 3. It does not constrict the tissues as the twisted suture does; 4. It may remain for ten, twelve, or fifteen days. In some cases, he has not removed the sutures until cicatrization has been completed. In performing the operation, he uses small fine needles. The whole thickness of the lip, from skin to mucous membrane, is traversed; and the needle is brought through the opposite side from the mucous membrane to the skin. The projecting ends of the wire are then twisted so as to bring the edges of the wound together.—*British Med. Journ.*, Sept. 19, 1863, from *Bull. Gén. de Thé.*, Aug. 15, 1863.

30. *Dressing of Wounds*.—M. MAISONNEUVE employs as a dressing to wounds, compresses soaked in glycerine either pure or holding in solution one-thousandth part by weight of phenic (carbolic acid). When a wound assumes an unhealthy aspect; or when the pus seems about to become altered in character; as well as in cancerous, atonic, or varicose ulcers, the dressing applied consists of glycerolate of phenole—i. e., glycerine holding phenic acid in solution as above described. M. Maisonneuve believes this glycerolate to be a better disinfectant than permanganate of potash.—*British Med. Journ.*, Sept. 19, 1863, from *Journ. de Méd. et de Chir. Prat.*, Aug. 1863.

31. *Radical Cure of Hydrocele*.—The treatment of hydrocele would scarcely appear to be open to much improvement, and yet M. MAISONNEUVE may be said to have rendered valuable service to country practitioners, in supplying them with the means of curing hydrocele without assistants and without any iodized or vinous injection. Surgical instrument-makers, by flattening the handle of the trocar, have made it a much more portable instrument; it can be placed in the common dressing case, and no peculiar apparatus is now required for the operation. A radical cure can be effected with the trocar, a common conductor probe, and a stick of nitrate of silver. The procedure is instituted as follows:—The cylinder of caustic and the probe are placed together in the flame of a candle, the nitrate of silver melts, and one drop adheres to the conductor, and solidifies on its point. The tumour is then punctured and its contents removed. The style, after being cleansed of the lamp-black on its surface, is inserted into the tunica vaginalis through the canula, and carried rapidly three or four times over its surface. The nitrate of silver dissolves in the cavity, and induces a sufficient amount of inflammation to secure satisfactory results. After this operation, M. Maisonneuve is of opinion that the patient should remain in bed for a week or ten days. In one month a complete cure is effected. We should add that the same procedure is applicable to all small serous cysts, in which the tincture of iodine is habitually injected.—*Dublin Med. Press*, Sept. 30, 1863, from *Jour. de Méd.*

32. *Pneumatocele of the Skull following Fracture of the Petrous Bone; Recovery*.—Dr. CHEVANCE records (*Bull. Gén. de Thé.*, 30th Aug. 1863) a case of this rare affection, of which two cases, one by Jarjavay and another by Ballas, are related in the *Arch. Gén.* for 1853.

A miner, aged 44, of good constitution, fell, in 1850, from a height of five mètres (nearly five yards and a half) on his feet, and immediately felt a very intense fixed pain at the back of his head, on the left side, with dazzlings of the eyes, slight giddiness, and singing in the ears; he felt stupefied also for half an hour, but did not lose consciousness. He said afterwards that he several times heard a crackling sound at the back of his head, in the situation of the pain.

There was no wound, nor any escape of blood or of any fluid by the ears, nose, or mouth. The symptoms which followed were pain at a distance of about five *centimètres* behind the left external auditory meatus, and difficulty of swallowing on this side. No treatment was pursued. Six weeks afterwards, there were difficulty of hearing, and constant troublesome buzzing noises in the left ear. At the same time, there appeared at the painful spot a small tumour, which remained stationary eight months, and then increased rapidly in size, so as to occupy the left posterior half of the head and almost the whole of the occipital region. Two punctures were made in it by a medical man; but air only escaped. At this time, seventeen months after the receipt of the injury, the patient entered the hospital at Wassy. At this time, the tumour commenced four *centimètres* from the ear, had a transverse extent of fifteen *centimètres*, and extended from the neck to the back of the head, forming a curve of twenty *centimètres* in extent on the left side, and eighteen on the right. It was painless, elastic, resistant to pressure, without heat or any trace of inflammation, and gave a tympanitic sound on percussion. There was no pulsation nor fluctuation. On being punctured with a trocar, it gave issue to gas alone, which, on being collected under water and tested, presented all the characters of atmospheric air. After its removal, there were found, a little above and behind the mastoid process, about four or six *centimètres* from the left auditory meatus, two hard, bony, unequal projections, between which a depression was felt; it was in this situation exclusively that the patient had always complained of pain. When the man made a strong expiration, the nose and mouth being closed, the air escaped with a hissing sound through the left ear. When the swelling was compressed with the hand, it collapsed, and gradually shrivelled, producing, the patient said, a crackling sound in the left ear. The *membrana tympani* was torn.

M. Chevance concluded that the case was one of fracture of the petrous bone by *contrecoup*, producing a communication between the tympanic cavity and areolar tissue lying beneath the scalp; and in this way he explained the gradual formation of the pneumatocele. In order to produce a radical cure, he determined on provoking adhesive inflammation on the walls of the tumour. A seton was, therefore, introduced, by which violent inflammation was set up; and on the third day there was an abscess which, on being opened, discharged 500 *grammes* of pus. In a month, the adhesion of the skin appeared complete. But, two months afterwards, the tumour again formed, being attended with the same symptoms. The abscess was, therefore, again emptied by the introduction of another seton; and on this occasion the cure was permanent.\* In M. Balassa's case, also, the cure was completed by the excitation of inflammation so as to produce adhesion of the integuments.—*Brit. Med. Journ.*, Oct. 10, 1863.

33. *Perinephritic Abscess*.—According to M. JOBERT de Lamballe, this is a common affection. He has seen several instances among M. Trousseau's patients, and one under the care of M. Rayer. In the latter instance, the abscess was developed in the cellular tissue which surrounds the kidney; on being opened, it gave exit to pus, which had an odour of peritoneal fluid, intestinal contents, and putrid liquids.

These abscesses are not always produced by disease of the kidney. Cold may induce in this region a diffused phlegmonous inflammation, like that which the same influence produces in the thigh, arm, etc.; or the abscess may follow a fall or blow. Pyelitis or pyelo-nephritis also may implicate the cellular tissue and produce phlegmon. Gravel, or calculi, especially rough ones, lying in the renal calices, may produce fistulous abscesses. In such cases, the abscess may be the result of pyelitis, the inflammation reaching the kidney and the areolar tissue surrounding it; or the tissue of the kidney perforated; and the abscess is produced by urinary infiltration.

Whatever be the mechanism of its formation, the abscess points either externally or into the rectum; sometimes towards the iliac fossa or the crural arch; sometimes it opens into the peritoneal cavity; it has even been observed to reach the air-passages.

The *symptoms* are, at the commencement, sudden pain in the kidneys and hypogastrium, with frequent and abundant vomiting. The pain is seated more

deeply than in lumbago; and its nature is further explained by the fever and rigors which ordinarily precede it. If this condition persist seven or eight days, it may be predicted that pus has been formed in the areolar tissue surrounding the kidney. At this time, also, inspection and palpation of the lumbar region may detect, if not fluctuation (which is rarely absent), at least sensible tumefaction of the lumbar region with a pasty or cedematous feel, especially behind. But even if these external signs be absent, the sympathetic reaction, with the history of the case (if the perinephritis be not primary, in which case the diagnosis is very difficult), are sufficient to render the diagnosis of phlegmon almost a matter of certainty.

The *prognosis* is grave; for, if the existence of the phlegmon be not diagnosed, and if issue be not given to the accumulated pus, it may spread to the right or left, or be effused into the peritoneum, etc.; and the inflammation may extend to neighbouring organs, as the spleen or lung. Even in the most favourable cases, where the abscess opens spontaneously outwards, troublesome fistulæ are formed; the pus becomes thin, decomposed, and acts as a formidable poison.

When suppuration has once taken place, the only *treatment* is to allow it exit by a large opening. M. Jobert is opposed to the plan of making a small incision with a narrow bladed bistoury, as the muscles of the back must be cut through, and, if an artery be divided, it is impossible to secure it. He therefore advises a long incision. The tissues must be divided layer by layer, and as each is reached, the finger must be carried to the bottom of the wound. If an artery be felt, it must be tied and divided; if a vein, it is divided between two ligatures. The covering of the purulent collection being at last reached, a small opening is made, on which the pus escapes; and the aperture may be enlarged by scissors or by a probe-pointed bistoury, in order to allow the free escape of the pus, or of calculi if they be present.—*Brit. Med. Journ.*, Oct. 10, from *Journ. de Méd. et de Chirurg. Prat.*, Aug. 1863.

34. *Cancerous Infiltration of the Entire Penis.*—MR. HOLMES COOTE communicated to the Royal Med. and Chirurg. Soc. (Nov. 10, 1863) the following interesting and unusual case:—

A man was admitted into St. Bartholomew's Hospital, under the care of Mr. Coote, with cancerous infiltration of the entire penis. It was found that he could not inhale chloroform without showing alarming symptoms of collapse. In the course of a month he died. On examination afterwards it was found that the whole penis was occupied by soft cancerous deposit; that there was a cancerous ulcer of the bladder; cancerous deposits in the lungs and bronchial glands, and several of the bones. The head was not examined. The heart was in a state of extreme fatty degeneration.

In reply to the President, Mr. Coote said that there was no enlargement of the inguinal glands, but there was of the glands in the pelvis. The phimosi was not congenital.

35. *Inequality in the Length of the Limbs.*—Inequality in the development of the limbs, arising from certain occupations, has hitherto been most generally noticed as it affects the upper compared with the lower limbs, as in bakers and dancers; but it also occurs between similar limbs, especially the arms, in cases where one of these limbs is actively employed, while the other remains in a more or less complete state of inaction. This inequality, Dr. DUPARQUE observes, affects the length as well as the volume of the arms, and arises from two sources, viz: the predominant development of the exercised limb; and a kind of arrest of development in that which is condemned to inactivity. In some cases, as in jewellers, cutlers, and smiths, the right arm is lengthened, while the size of the left arm is increased in painters on porcelain. This abnormal development can only occur in subjects who have followed their occupations from an early age—before puberty or at its commencement, when the body is not yet fully developed. This inequality between similar and parallel limbs is regarded by Dr. Duparque as of some surgical importance. The neglect or ignorance of its occurrence may produce mischievous results in diagnosis, in prognosis, and in operative procedures in those cases of injury, such as dislo-



cation in fracture, in which an alteration in length forms an important feature. As a general rule, Dr. Duparcque says, in all cases of injury of the upper limbs from direct or indirect violence capable of producing fracture or dislocation, the occupation of the patient, and its influence on the development of the limbs, should be inquired into.—*Brit. Med. Journ.*, Ap. 25, 1863, from *Gaz. des Hôp.*, 7 March, 1863.

## OPHTHALMOLOGY.

36. *Recent Modifications in the Methods of Extracting Cataract.*—It appears from statistics of 3000 cases, under careful operators, that about one eye in twelve is lost by the ordinary method of extraction. This has led some of our German brethren to propose certain new methods of performing this operation by which they hoped to obtain better success. Foremost among these is Dr. SCHUFT, of Berlin, who has since, by royal letters patent, changed his name to WALDAU. This method, as described by Dr. Workman,<sup>1</sup> from the author's pamphlet, published at Berlin in 1860, is as follows:—

After directing that the lids be separated by a spring speculum, and the globe fixed by a pair of forceps, the surgeon is to make an incision with one of Jæger's iridectomy knives, within the edge of the cornea for about a fifth of its circumference. He is then to draw out a piece of the iris with a pair of forceps, and cut off about a fifth of it. The whole breadth of the iris is not to be removed, but a belt at its ciliary margin is to be left, so as to afford support to the vitreous, and prevent prolapse of that body. The edge of the lens at this part comes slightly forwards, from having lost some of its support. The capsule is now to be torn through. Dr. Waldau thus describes the way in which the lens is removed: "The surgeon introduces the scoop into the wound, at first pushing on very slantingly towards the centre of the eyeball till it has passed beyond the equator of the advancing lens. He then slopes the handle backwards, at the same time pushing the scoop onwards, as if he meant to shell the lens out of its bed. When the centre of the scoop has reached the posterior pole of the lens, with a lever movement all that is embraced within its broad surface is cautiously lifted out into the anterior chamber. The greater part of the lens is thus removed in one spoonful." Any remaining fragments are taken out by the re-introduction of the scoop. Lastly, the globe is to be lightly rubbed with the lids, so as to wash any fragment that may be concealed behind the iris into the pupillary area. Dr. Waldau uses a scoop with a flat bottom and steep edge, and describes it as having the following advantages:—

1st. That its broad surface enables the operator to support the cataract so as to lever it entire, or in greater part into the anterior chamber.

2d. It has a sharp edge, forming a large curve, by which the scoop can be stuck into the back of a hard lens so as thoroughly to fix it.

3d. The anterior lip being prominent, assists in drawing out a cataract, by pushing it, as it were, from behind.

4th. The stalk is smaller than the breadth of the spoon, so that it does not make the wound gape during the manipulations.

"With the aid of the scoop," he says, "we are able through a linear wound, to remove completely, and without excessive damage and peril to the eye, every lens equally well, whether it be transparent or partially or wholly opaque, and whatever its size or consistence." The ability to fix the eye all through the operation he considers as a great advantage. The following cases Dr. Waldau mentions as suitable for the operation:—

1st. All cataracts in persons above twenty-five or thirty years of age, which have a hard or more or less considerable nucleus.

2d. Not perfectly ripe cataracts in both young and old persons.

3d. Cases of cataract with closed pupil.

4th. Cases with foreign bodies lying in lens.

<sup>1</sup> *Med. Times and Gaz.*, Oct. 3, 1863, p. 357.

This operation, Dr. Workman states, is now frequently performed with very satisfactory results at the Royal London Ophthalmic Hospital, Moorfields. "In doing it, Mr. Critchett thinks it best to remove a portion of the circumference of the cataract before passing the scoop beyond the equator of the lens, and he finds that it generally takes about four or five spoonfuls to remove the lens entirely.

"It is very important to remove every portion of the nucleus, for, if a fragment be left it will act as a foreign body, and set up iritis, and so much lymph may be thrown out that closed pupil may be the result.

"In introducing the spoon, unless great care is taken, the hyaloid will be ruptured, and more or less vitreous be lost, which accident may be followed by internal hemorrhage, and detachment of the retina, or even suppuration of the globe.

"After the surgeon has removed a portion of the iris, he is sometimes annoyed by the anterior chamber filling with blood, and this must be removed by the curette before proceeding to the next step of tearing through the capsule. The capsule should be torn through along the margin corresponding to the wound in the cornea, so that the scoop may easily pass inside it."

The amount of manipulation which the eye must undergo in this method of operating, and the serious consequences, pointed out above, as sometimes resulting, would seem to us to afford no great encouragement to adopt it; and we are told that Mooren lost ten eyes out of thirty-two operated by this method; and Dr. R. B. Carter states (*Med. Times and Gaz.*, Oct. 24, 1863, p. 432) that he has employed it twice, both times with destructive consequences.

Drs. Mooren and Jacobson have each proposed a modification of Waldau's operation. They both affirm that the starting point of inflammatory mischief after extraction is the portion of the iris that is compressed during the exit of the lens, that is the inferior portion. They both therefore remove this portion by iridectomy; but Dr. Mooren makes the iridectomy a preliminary operation, and only extracts when the eye has completely recovered from it, while Dr. Jacobson makes iridectomy the last step in his operation. Both Dr. Mooren and Dr. Jacobson operate by the inferior corneal flap, and the latter puts his patients deeply under the influence of chloroform, while the former does not employ an anæsthetic.

Dr. Jacobson also departs from the ordinary line of incision in the transparent cornea, makes his puncture and counter-puncture at the junction of cornea and sclerotic, and slightly approaches the plane of his knife to that of the iris, so that much of the cut is carried through the conjunctiva. In this way he gains room for the easy exit of the lens, and places his wound nearer to the vessels that supply materials for its repair.

We have not seen a detailed account of Dr. Mooren's manipulations, but Mr. R. B. Carter gives (*Med. Times and Gaz.*, Oct. 24, 1863) the following description of Dr. Jacobson's:—

"The patient being profoundly narcotized by chloroform, Dr. Jacobson seats himself in a convenient position on the side of the bed, and, while an assistant separates the eyelids, seizes the conjunctiva and the submucous tissue, with proper forceps, at a point below and to the nasal side of the cornea. With the disengaged hand he introduces his knife half a line below the horizontal meridian, makes his puncture and counter-puncture as described, and pushes the blade straight onwards as far as may be convenient. He then withdraws it, having an isthmus of undivided tissue at the centre of the flap; and whether this isthmus contain a portion of cornea, or only conjunctiva, will depend upon the proportion between the width of the blade and the corneal diameter. The capsule is then freely opened with Von Græfe's (flea-shaped) cystitome, and the isthmus is next divided, its corneal portion (if any) with the point of the knife, its conjunctival portion with scissors, at about two lines from the rest of the wound. A very gentle pressure with the thumb, through the upper lid, turns the upper portion of the lens a little backwards, causes it to perform a sort of rotation in the eye, and to present its lower edge at the pupil, through which it passes in the usual way. The lower segment of the iris is next drawn out of the wound, and cut off close to its ciliary margin. The eye is then cleansed from blood and

coagula, and, if the cornea be in good position, is closed immediately. If the cornea be sunken, Dr. Jacobson waits until it is elevated by freshly secreted aqueous humour (that is, from five minutes to half an hour) before he applies the Arlt's compress, which, both by Dr. Mooren and himself, is considered an essential part of the treatment.

"During the whole of the operation, the effect of chloroform is maintained in such a degree as to render the ocular muscles absolutely passive; and the inhalation is therefore renewed from time to time as may be needed.

"Dr. Jacobson devotes to the after treatment of his cases a degree of care and attention that must contribute very largely to his success. Each patient, for twenty-four hours after the operation, receives the undivided attention of a nurse. The earliest symptoms of inflammation are met by iced poultices, changed every few minutes, and by continuous leeching where the symptoms are severe, and the patient's strength will permit. Four leeches are applied in front of the ear, and replaced by others as they fall, until no less than from forty to eighty have been used in a single case. Dr. Mooren's method does not seem to entail much liability to inflammation, and he speaks as if little or no treatment had been required by his patients.

"Dr. Mooren asserts that he has operated by his method in sixty cases with only two failures, and Dr. Jacobson states that he has operated by his method in one hundred cases with only two failures."

This is certainly remarkable success, but it remains to be seen whether these methods will prove equally successful in the hands of others. Until this is ascertained, the objections to these methods of operating are so strong that we cannot regard them with favour; but after all their value must be determined by the results obtained, and not entirely by reasoning, however plausible.

37. *Operation of Abcision in Staphyloma.*—Mr. CRITCHETT describes (*The Royal London Ophthalmic Hospital Reports*, No. 5, 1863) a mode of operating for staphyloma that he has adopted during the last two years in several cases, which seems to him to possess some advantages over the various plans hitherto recommended.

"It will be generally admitted," he says, "that in all cases of complete staphyloma, some operative proceeding is called for. The deformity is usually considerable, and is liable to increase; the part is in a morbid condition, often inflamed and irritable, and exerting an unfavourable influence upon the other eye. Whether it remain in a quiet state, or pass through a series of changes, it becomes desirable to operate. We may now consider what are the conditions that we wish to bring about by the operation.

"The object we have in view is to reduce the staphyloma to a firm elastic bulb, that shall be fully influenced by the various muscles, and shall be about a third less in size, or at any rate, in its antero-posterior measurement, than the normal eye, this condition being the most favourable for the employment of an artificial eye. Various methods have been employed with a view to obtain this result, that which has been most commonly employed up to the present time both in this country and on the Continent, has been to cut away the anterior part of the staphyloma with an ordinary Beer's knife, so as to open into the vitreous chamber. Some slight modifications have been introduced by various operators, some removing only a small portion, others taking away the anterior third, or even half of the staphyloma. Some have introduced a needle previously, so as to allow some of the contents of the globe to escape previous to abscission. Those who have had an opportunity of extensively testing this method of proceeding, have become aware of several serious inconveniences. It not unfrequently happens, that a gush of vitreous humour follows the removal of the anterior supports, and subsequently the enlarged and diseased vessels give way, and continue to bleed for several hours, distending the surrounding parts, causing considerable pain, and ultimately suppuration. This untoward result may follow immediately upon the operation, or a few hours or even days after, or in cases where hemorrhage does not occur, suppuration may occur attended with considerable reaction, and constitutional disturbance. Under either of these contingencies, the globe is apt to shrivel up into a small compass, with very slight

movement, and imperfect adaptation for an artificial eye. This shrunken globe occasionally becomes hard and painful, and irritates the companion eye. In other cases where no hemorrhage occurs, and no suppuration follows, the sclerotic opening remains in a patent state, with the vitreous humour or the lens presented. Repair is, under these circumstances, difficult, tedious, and uncertain. The membrane that is formed is not unfrequently elastic, and by yielding to the pressure within, bulges, and constitutes a fresh staphyloma, or forms an unstable and irritable basis whereon to rest an artificial eye. Such are the objections to the methods of operating ordinarily employed for the reduction of a staphyloma, and they lead us in the next place to the consideration of the results we are desirous of obtaining, of the accidents we wish to avoid, and the method proposed for their avoidance. In reducing a staphyloma, the aim and object is to form a dense, fibrous, elastic, movable bulb, filled with fluid, flattened upon its anterior surface, and of such a size as admits the ready adjustment of an artificial eye, and its free movement. In carrying out this object, it is important to mark the size and form of the piece to be removed, to allow of some slight escape of the contents of the eye, so as to avoid a sudden gush, to keep up some support during the operation, and subsequently to place the parts in a favourable condition for supporting the vessels, keeping up pressure, and uniting by the first intention. I will now endeavour to describe the method by which these various objects are intended to be carried out. The patient being placed under the influence of chloroform, the staphyloma is freely exposed by means of a wire speculum, a series of four or five rather small needles, with a semi-circular curve, are passed through the mass about equi-distant from each other, and at such points as the lines of incisions are intended to traverse. These needles are left in this position with both extremities protruding, to an equal extent, from the staphyloma. The advantages gained by this part of the proceeding are: 1st, that a small quantity of the fluid parts of the distended globe escapes, thus diminishing pressure, and preventing a sudden gush of the contents when the anterior part is removed. 2dly, that the points of emergence indicate the lines of incision. 3dly, that the presence of the needles prevents, or rather restrains, to some extent, the escape of the lens and vitreous humour, after the anterior part of the staphyloma has been removed. The next stage of the proceeding is to remove the anterior part of the staphyloma. This requires some judgment and modification in size and form, in accordance with the extent of the enlargement, so as to leave a convenient bulb. My usual plan is to make an opening in the sclerotic, about two lines in extent, just anterior to the tendinous insertion of the external rectus muscle with a Beer's knife. Into this opening I insert a pair of small probe-pointed scissors, and cut out an elliptical piece, just within the points where the needles have entered and emerged. The needles, armed with fine black silk, are then drawn through each in its turn, and the sutures are carefully tied so as to approximate as closely as possible the divided edges of the sclerotic and conjunctiva. The operation is now finished; the speculum may be removed so as to allow the lids to close, and wet lint may be applied to keep the parts cool. In a large majority of cases, union of the divided edges takes place by the first intention. The operation has been performed by myself and by my colleagues at Moorfields Hospital, in about thirty cases, and suppuration only occurred in four cases. I generally leave the sutures in for some weeks. Sometimes they come away spontaneously, and when that is not the case, they may readily be removed after all irritation has passed away, and after firm union has taken place. If the case be examined three or four months after the operation, a movable bulb is seen with a flattened anterior surface, traversed by a transverse white line of cicatrix, and having rather a prominent external angle. Upon this an artificial eye can be readily adapted, which moves to a greater extent than I have observed previous to the adoption of my present plan.

"In reviewing the various stages of this operation, I think it will be admitted that it accomplishes the objects for which it is undertaken in a safe and rapid manner, and avoids to a great extent the inconveniences that attend the methods usually adopted. Hemorrhage and suppuration are prevented, the size of the bulb is regulated by the union of its edges by the first intention, and a firm, elastic, fibrous case is formed, possessed of extensive mobility, and admirably adapted to bear an artificial eye."

38. *On some of the Diseases Constituting the Condition commonly called Amaurosis.*—Mr. ERNEST HART read before the Harveian Society (Nov. 5, 1863), a paper on this subject. He said that amaurosis was not one but many diseases, and that by the ophthalmoscope it was possible to distinguish in their early stages those deep-seated alterations in the choroid, retina, humours, and interior vessels of the eye, which without it could only be guessed at, and whose pathological change constituted a variety of diseases leading to blindness without change in the external appearance of the eye. Upon their diagnosis and treatment in their early stages rested the possibility of saving the patient's sight. If they were so recognized, sight could now, in the majority of cases, be saved; if they were not, it was lost. The subject was so wide that he proposed only to describe one or two of the most common conditions of deep-seated disease, such as were constantly met with in general practice, selecting those which were liable to be overlooked. Mr. Hart first briefly demonstrated the appearance of the fundus of the healthy eye as the starting point of all comparison. In the normal eye the humours were perfectly clear; but he showed the opaque appearances which were presented under the ophthalmoscope by even the faintest traces of commencing cataract in the lens, and said that by this method of investigation the chapters in ophthalmology which treated of the distinction between cataract and amaurosis were cancelled. No difficulty could arise if it were used: while in some cases it was impossible to decide without it. This at once removed one blot from practice, and added an element of certainty which was very acceptable. He described the changes in the vitreous humour leading to dimness of vision—black spots, and shreds or veils before the sight, and showed that the nature of these also could be detected with certainty. When organic, they were commonly of syphilitic connection, and admitted of satisfactory treatment. Other conditions leading to similar symptoms would be greatly aggravated by anti-syphilitic treatment. Here, too, the distinction could be precisely established. He then passed on to a serious class of diseases, in which the early symptom was increasing short sight, with some uneasiness, and, perhaps, slight lachrymation. These were the first objective signs of congestive inflammation of the choroid, involving the sclerotic, and leading to atrophy of that membrane around the entrance of the optic nerve. This atrophy leads to pouching of the membranes here (posterior staphyloma), and the increasing short-sightedness was consequent upon the retreating staphyloma. The use of glasses aggravated the disease. It existed in forty per cent. of the cases of defective vision. Mr. Hart traced its consequences through their series of pathological changes in the retina, vitreous, optic nerve, and lens, and said that this advancing short sight was a common and neglected sign of disease, producing a large proportion of the cases of irremediable amaurosis of advanced life. Whenever short-sightedness was found to be rapidly advancing, especially in youth, a careful ophthalmoscopic examination ought to be made; if this were done, infinite suffering might be saved to many, and good done to all. Concave glasses were absolutely safe when the cause of short-sight was in the lens and dioptric apparatus of the eye, but a source of danger and liable to abuse in that large percentage of case which he had described. The ophthalmoscope drew a sharp line between the two, and afforded the means of giving appropriate and definite advice in each case. Mr. Hart then described a form of amaurosis commencing with deep-seated choroiditis, of which the first step was dimness of sight at night, and gradually increasing limitation of the field of vision, which crept on slowly and imperceptibly through a course of years, until at the end it led to total blindness. The retina was slowly involved, and in the end became spotted with patches of pigment, which gave it the appearance of a leopard-skin. The condition began by dimness of sight in youth, and ended in the slow and painless extinction of sight between the ages of thirty and forty. Mr. Hart illustrated this, with a demonstrating ophthalmoscope, in the person of a patient who had recently come under his care, and in whom the disease had for eighteen years been progressing unsuspected and untreated, nearly the whole visual field of the retina being now so affected. The prognosis of such a case was desperate.—*Lancet*, Nov. 21, 1863.

39. *Three Cases of Amaurosis produced by Tobacco.*—By J. O. WORDSWORTH, Esq., Surgeon to the Royal London Ophthalmic Hospital. CASE 1. W. A.—, aged 21, a clerk, residing at Liverpool, came to the Royal London Ophthalmic Hospital in 1861, on account of partial loss of sight in both eyes. He is a strong, healthy-looking, rather little man. Has always had excellent health, and never suffered from syphilis. His employment is principally in the open air, as he is engaged in clearing vessels at the Custom House, &c. For some years he has smoked, having gradually increased from two or three pipes per day, until he has reached the enormous amount of a pound to a pound and a half of strong tobacco in the week; and for some time has rarely been without his pipe half an hour in the day. For a long period his sight has gradually failed, till he can only see to read, for a short time, characters of one-third of an inch. Though he has had misgivings that his ailment proceeded from tobacco-smoking, he has continued the habit to the present time, and is now daily becoming more blind.

Both pupils are rather large, but the motions of the irides are active. By means of the ophthalmoscope, both optic nerves appear of brilliant white colour, their areas being enlarged, and their outlines irregularly defined.

CASE 2. J. M.—, aged thirty-six, a railway servant, came to the Ophthalmic Hospital, on account of dimness of sight in both eyes, about June, 1862. He is a tall, muscular, rather pale man, and says he has always had good health. He is employed as a signal-man, and has been accustomed to beguile his time by smoking all day long. For an uncertain time he has noticed his sight to be gradually failing, and attributed the defect to the use of tobacco. He has still continued to smoke to the present time, and his sight has now become so imperfect that he is unable to attend to his business. He has never had venereal disease of any kind, nor has he used his eyes much for close vision.

The pupils are considerably dilated, and not much influenced by light. The fundus of each eye seems quite normal, with the exception of the optic disks, which appear too large, and irregularly circular, the tissue being quite of tendinous whiteness.

CASE 3. G. A.—, aged 28, a butcher, residing in Essex, applied at the Royal London Ophthalmic Hospital, March 25th, 1863, on account of failing sight in both eyes. He is a stout, strong, middle-sized man, having every appearance of health, and says that he has had excellent health all his life. He began to smoke about eight or nine years ago, moderately, but, gradually increasing, has now for some time been in the habit of smoking half an ounce of strong tobacco every day, apparently without any ill effect. About nine months since his sight began gradually to fail, and has continued to get worse to the present time. He has always been temperate as to the quantity of beer, &c., which he has taken, and has never drunk spirit habitually. He is a married man, and has three healthy children. Has never suffered from syphilis, nor has he used his eyes much at any trying occupation. With the exception of both pupils being rather large, and the motions of the irides sluggish, he has no external appearance of any ailment of the eyes. He can only see to read No. 18 test-type (canon) with his left eye, and with the right No. 16 (two-line great primer), word by word; and distant objects are equally indistinct.

The ophthalmoscope demonstrates an atrophic condition of both optic nerves, the inner (apparent) half of each, seen in the reversed image, being quite white and non-vascular; the outer part being redder, and more vascular than normal.

Within the last three years I have seen a considerable number of cases of amaurosis, apparently produced by the influence of tobacco. I admit (I need scarcely say) how difficult it is to reduce the etiology of this obscure affection to a demonstration. For, in the first place, amaurosis is attributed to a vast variety of causes, many of which are always more or less in operation; then, again, the disease is dependent on a similar variety of *pathological conditions*; and lastly, our knowledge of the physiology as well as of the pathology of the retina and brain is so limited that we can ill appreciate or define the influence of physiological agents on their structures and functions.

No one can doubt that tobacco possesses properties that are capable of producing great effects on the nervous system at large, nor that the habitual use of

it has much influence, of an indirect nature, on the vital reactions. Our only wonder is that the almost universal employment of this powerful agent does not leave vestiges of its influence that are better known and recognized as signs of disease. This may be accounted for to some extent by the rapid cadaveric changes that occur in the nervous elements, thus obscuring or effacing diseased states before we have the opportunity of recognizing them.

All the classic writers attribute its full share of causation to tobacco as a source of amaurosis; yet I have not met many that are willing, individually, to allow that they have traced its influence. But it has often happened that the causes of disease are long unrecognized by many, after as full a proof has been made of their reality as possible. For instance, it is recorded of one of the causes of iritis (that every one now allows) that for many years it was not admitted by men of vast experience that any closer relation than that of coincidence existed between it and syphilis; yet so great has been the revulsion of opinion that some eminent men now seem to think it never occurs except in connection with that contamination.

I have selected the cases above sketched to illustrate this subject, because they seem to be as free from the unavoidable fallacies that encircle this subject as possible. Many have come under my notice in which I could not find any other cause to account for the conditions; but few so typical of the atrophy of the optic nerve, or so advanced. It is obviously desirable to cite well-marked cases. Many of those observed gradually merged into less definite conditions, and were only corroborative, rather than conclusive. Again, many were so fettered with other complications that I consider them inapposite for my present purpose. All the cases that have come under my observation have (as might probably be expected) been in males. It will be noticed that only one pathological condition was seen in these three cases—namely, that of white atrophy of the optic nerves. I am not prepared to assert that tobacco produces blindness in this way only; but in all my cases I have recognized this condition in a great or small degree.

I may anticipate that I shall be asked, How can it be that of the hundreds of thousands of smokers, only so small a proportion are affected by amaurosis? I should reply, first, that few probably smoke to such excess the strongest tobacco; in the second place, we are not yet in a position to recognize the smaller degrees of tobacco-disease; and thirdly, as Dr. Mackenzie has aptly observed, only one of five hundred shall become amaurotic, in whom a stronger predisposition to the disease had existed.

Secondary syphilis affects the retina, and leads to amaurosis; but of the thousands affected how few become blind!

Then it has been suggested that I ought to show that amaurosis is most common where smoking is most general. To this I reply, it is impossible so to estimate and proportion the other recognized causes of amaurosis so as to enable us to compare them with the effects of tobacco, and thence deduce any relation. But so far as probability warrants, I think there may be some conclusion to this purpose deduced from the greater frequency of atrophy of the optic nerves in men than in women (of which I suspect there is little doubt), though the other causes of amaurosis are more likely to affect the latter—for instance, needle work, &c.

Dr. Mackenzie, in his great work on Ophthalmology, expresses his belief that tobacco is a frequent cause of amaurosis, and adds that "one of the best proofs of tobacco being a cause of amaurosis is in the great improvement in vision—sometimes complete restoration—which ensues on giving up the use of this poison," and cites a very striking case in illustration. With him I agree also in the conviction that tobacco is a common cause of the cases of partial loss of sight that are daily to be found at our hospitals.—*Lancet*, July 25, 1863.

40. *Use of Tannin in Inflammatory Affections of the Conjunctiva.*—Mr. G. R. SHERATON submits (*Med. Times and Gaz.*, Sept. 12, 1863) his experience with the use of astringents and particularly tannin in the treatment of Ophthalmia, and maintains the superiority of local over the antiphlogistic treatment. But he justly admits that when the ophthalmia arises from constitutional causes,

the state of the constitution must be remedied, while then the local treatment is of secondary import. He thinks, however, that conjunctivitis generally results from local causes and demands local remedies.

"How often," he says, "have we seen the antiphlogistic treatment persevered in till the system has been drained of its blood, without producing the least beneficial effect, otherwise than relieving the coexisting symptomatic fever, with a succession of blisters only to increase the vexation and disappointment. If we look over the list of local remedies that have been successfully employed in the treatment of the ophthalmia, we will find them to be astringents, as plumb. acet., argent. nit., zinci sulph., etc., and that their beneficial results are in proportion to the amount of astringency which they possess.

"Astringents are also indicated on theoretical grounds, the *modus operandi* of which upon the living tissues is to a considerable extent mechanical by contracting the fibres and capillary vessels of the part to which they are applied, by which less fluid is admitted into them. But the astringents ordinarily in use, and derived from the mineral kingdom, are inadmissible during the acute stages, in consequence of the violent irritation they produce if applied directly to the membrane, except in a very ineffectual degree of dilution.

"On these grounds, then, I have been led to employ tannin, which is probably one of the most powerful astringents, whilst its comparative freedom from irritation renders it a safe and effectual remedy for the class of cases which I have proposed. The manner which I employ it is in the form of solution of tannin, 3j—3ij to aq. destil. 3j.

"A small portion of this is dropped into the eye, which at first causes a smarting sensation with a gush of tears, and which is succeeded by dryness and a feeling of comfort. This is to be repeated three, four, or a dozen times a day as circumstances require. The effect produced is soon made apparent; the distended capillaries seem to become unloaded of their stagnant contents, increased lachrymation and muco-purulent discharge, if present, is checked, the organ becomes more fitted to perform its office, and the dependent constitutional symptoms are mitigated and disappear. I have now treated a great number of cases most satisfactorily in this manner, without ever having had occasion to deviate from that course in the slightest degree when the result of external causes and unconnected with constitutional diathesis. Though chemosis when present seems to retard the progress somewhat, probably in consequence of the effused fluid for a time preventing its full constrictive influence upon the capillary vessels. Since I have been thoroughly convinced of the utility of tannin as a remedial agent in this class of cases, I have modified the mode of application to suit the exigencies of the various cases, *e. g.*, by its combination with some aqueous extract of a sedative drug, as solution of morphia, belladonna, opium, etc., to relieve the distressing pain, heat, and smarting that always to a greater or less extent accompany this disorder. I have also found it to be extremely useful during the acute stage of strumous, phlyctenular corneitis, removing the vascularity more expeditiously than any other remedy that I have hitherto employed, and probably tending to contraction of the resulting ulcer, and by its combination with the aqueous solution of belladonna, etc., soothes and relieves the intolerance of light; though it has usually been my practice to employ the stimulating mode of treatment as soon as the fasciculi of vessels had disappeared. I have also been careful to secure a suitable regimen, and a dose of aperient medicine when such was deemed necessary."

41. *Ophthalmia produced by "Sulphuring" Vines.*—In the South of France, the operation there practised of dusting the vines with sulphur has produced a large number of cases of ophthalmia; and M. Bouisson has made on this subject a communication to the Academy of Sciences in Paris. The workmen attacked with this affection have the eyes red, lachrymose, and swollen; they feel a pricking pain, especially towards the middle of the day, when the heat, and the direct and reflected light of the sun are most intense. They complain of photophobia, and of pains radiating towards the forehead. This irritation is diminished by rest at night and by washing with cold water. But the irritation is reproduced by its cause; and its repetition soon brings on more or less intense ophthalmia,



which manifests itself in the following forms. 1. The most common form is inflammation of the caruncula lachrymalis and of the semilunar fold of the conjunctiva. On examination, particles of sublimated or triturated sulphur, enveloped in mucus, are found at the inner angle of the eye. 2. A more serious form of the disease is a true conjunctivitis; ordinarily acute, without, however, reaching the suppurative stage. It very rarely produces patches on the cornea or other severe disorders. In unhealthy subjects, the disease assumes a chronic form, takes the characters of tarsal ophthalmia, and produces lippitude and falling off of the eyelashes. 3. A third form is accompanied by subconjunctival ecchymoses. The treatment is preventive and curative. The preventive means consist in the choice of the form of sulphur to be used, in the use of veils or spectacles, and in the employment of hygienic measures after the operation. The curative means are those of ordinary ophthalmia.—*Brit. Med. Jour.*, Sept. 19, 1863, from *Bull. Gén. de Thérap.*, Aug. 30, 1863.

42. *Reflecting Ophthalmoscope*.—MR. J. Z. LAURENCE has lately invented a reflecting ophthalmoscope on the ghost principle, which he exhibited to the Harveian Society of London on the 15th of Oct. last.

Mr. Laurence first showed on the eye of a rabbit that the luminosity of the fundus oculi may be readily observed by interposing a sheet of plate-glass between the eye and a lamp flame. An observer regarding the surface of the glass at the proper angle sees the illuminated pupil. It was then shown that the aerial image formed in the focus of a convex lens may be at once rendered obvious by its reflection from a plate of glass placed beyond the focus of the lens. In this way Mr. Laurence succeeded in demonstrating the optic nerve, retinal, and choroidal vessels of the rabbit's eye by the reflection from a sheet of glass of their real image formed by a convex lens (of two or three inches focus). An ophthalmoscope on this principle consists, then, simply of two parts—(1) of a convex lens, and (2) a plate of glass. In this way Mr. Laurence stated he had observed the minutest details of the human fundus oculi; but, at the same time, he wished to impress on the members of the Society that he had only succeeded in establishing the principle of his instrument, there remaining much to be done in the details of its construction before it would become one of general practical utility. Mr. Laurence then exhibited in a patient a very striking instance of pulsation in the retinal veins, of which, in a less degree, he stated he had latterly observed several other instances since his attention had more especially been directed to the point. With regard to the "reflecting ophthalmoscope," Mr. Laurence stated that it possesses also autophthalmoscopic properties. In the autophthalmoscope of Coccinus, also, the perforated mirror might be advantageously replaced by a disk of plate glass.—*Med. Times & Gaz.*, Oct. 31, 1863.

## MIDWIFERY.

43. *Combined External and Internal Version*.—DR. BRAXTON HICKS read before the Obstetrical Society of London (November 4, 1863) a paper on this mode of turning, which might be called "bimanual version;" and brought forward twenty cases in which he had operated, including eight cases of placenta prævia, one of accidental hemorrhage, and two in which he had changed arm presentations into cephalic, in both of which the children were born alive. After alluding to the discovery of the mobility of the fœtus made by the Germans, and also to the plan of pushing on the child by one or two fingers through the os, he proceeded to show the mode of combining both movements, by acting on both extremities of the child, with a much greater certainty as to the result in the majority of cases requiring version. He pointed out the principles on which the plan was based, viz., the mobility of the child in utero, varying according to the activity of the uterus; the position of a knee within a short distance of the os, when the child was transverse; the ease with which the breech was

brought to the os with the foot upon it, when the child was already transverse. The movement of the child in utero was accomplished by pressing on one side of the breech at the fundus, in ordinary head presentations, by a series of gentle palpations; or by a gliding pressure on the abdominal parietes, so as to follow up the foetus as it recedes under the impulse, by continuing of which the breech is brought to the middle of the uterus on one side; at the same time, the head is pushed up by a finger or two through the os, so as to raise it above the brim to the middle of the uterus on the other side. The child being thus more or less transverse, the knee can be generally easily seized; if not, the breech must be depressed to the os, and the foot secured. Dr. Hicks dwelt upon its easy application to placenta prævia, as shown in the cases he recorded; and stated that it was particularly of use in those cases where the os was so little dilated that the hand could not enter. He, however, laid great stress upon the importance of not using any more traction than the weight of the arm could produce, whereby the child was used as a plug, while time was given to rally the patient, for the os to dilate, and for the pains to come on. In almost every case he waited for natural efforts to deliver, only gently assisting. He had in none seen the slightest bleeding, internal or external, after the leg was once fairly through. Dr. Hicks then pointed out the mode of producing cephalic version, which he had found very practicable in certain cases of transverse presentation, by placing the head, already secured between the outside and inside hand, into the os, and retaining the external hand on the head till the uterus had moulded itself to the form of the head and shoulders. He also showed that this mode of pressing the head into the os was a means of restoring prolapse of the funis in some cases, as occurred in two cases recorded by him, and thought it would in similar cases be found to be a satisfactory mode of treatment. Allusion was then made to the advantages of early version, and to the class of cases to which it was applicable. The circumstances that arose to interfere with the plan were pointed out, and the means of combating them. The author remarked, that although in confirmed arm presentations it was scarcely possible to expect this plan to succeed, yet these cases need seldom occur to a vigilant practitioner, as he had the means of avoiding such cases, if called early, by bimanual version. Perhaps the greatest value of this mode is the capability of version long before it can be performed by any other method.

Dr. Hall Davis could from experience bear testimony to the practicability and value of the operation of turning the child by external manipulation, as proposed by Dr. Hicks. He must, however, confess that he had found Dr. Hicks's method most successful when conjoined with the introduction of two fingers of the left hand to hook down the knee, or of the entire hand when the foot could not otherwise be reached. In some cases he had found version by one foot impossible; he had then by bringing down the other foot effected his object with facility. In those cases of placenta prævia in which the patients had lost much blood, and turning was advisable, he thought the method now proposed, with or without the employment of two fingers internally, as circumstances might indicate, particularly valuable; as in these cases, from reflex action being in them more readily set up, the introduction of the hand into the uterus was attended with greater risk. Dr. Davis had in a few cases, to obviate turning, tested the practice of detaching the placenta from the cervix; but the hemorrhage had continued. No fatal result followed, however, as the child was immediately brought down, and acted as a plug upon the bleeding orifices.

Dr. Greenhalgh mentioned a case in which he performed the operation of version by Dr. Hicks's method. He had adopted it at Dr. Barnes's suggestion, who had kindly given his assistance. The operation succeeded very well so far as the turning of the child was concerned, and the circumstances were such that turning by any other method would have been impossible; but the difficulty afterwards experienced in extracting the child—the pelvic inlet being very greatly narrowed—was so great that it was necessary to perform the Cæsarean section.

Dr. Barnes called attention to the extreme value of the paper as tending to advance the cultivation of the hand as an obstetric instrument. The case described by Dr. Greenhalgh was one in which the advantages of Dr. Hicks's

method of turning were most remarkably illustrated. The pelvis was so contracted that it was simply impossible to do more than squeeze the two fingers in between the tumour and the symphysis pubis; yet the turning was fairly accomplished, although for want of space it was still impossible to grasp the foot which had been brought down. He (Dr. Barnes) had performed the operation of turning about 110 times during the last five years, and he might say that in almost every instance he had derived more or less assistance from the adoption of the principle of this method. That principle consisted simply in acting upon the two poles of the long diameter of the fœtus at the same time. Just as in the case of a Chinese ball contained within another, if you pressed upon one point only, the inner ball would not revolve; but if you pressed upon opposite poles in opposite directions at the same time, the ball would revolve easily: so it was with the fœtus in utero. The general application of this principle in turning had been developed in his practice gradually as difficulties arose. He had first been led by Dr. Simpson's recommendation to use the right hand externally to support the uterus, and then he was not long in discovering that the hand outside might often be made more useful in effecting version than even the left hand inside. Thus he had for some years put in practical operation the bimanual method, and had frequently turned without introducing more than two fingers into the uterus. But he was glad to acknowledge that he had not fully grasped the principle of the operation, nor carried it into practice with entire comprehension and accuracy, until after reading Dr. Hicks's excellent description. It was right to refer to the history of this operation in reference to the researches of others. In 1807, Wigand published an admirable memoir, in which he fully described the principle and method of turning by internal and external manipulations. But this memoir has been unaccountably neglected. Although his name was quoted, what he had written appeared to have produced little or no effect upon practice. The memoir had, however, of late years been translated into French, and from that translation Cazeaux had largely quoted in his *System of Midwifery*. Martin, in 1850, and Esterle, an Italian professor, in 1859, since dead, appeared to have well understood the principle. But these and others generally preferred the cephalic version, and their writings, although quoted at times, had not influenced practice. In no text book, except Cazeaux's and Hohl's, was there any allusion to this improved method of turning. The speaker had acquired such confidence in its use, that, although he had been several times called in to exviscerate after other practitioners had spent many hours in vain attempts to turn, he had never yet failed to deliver by version, and he had not yet been reduced to the unpleasant necessity of exviscerating. One secret of success lay in obtaining an accurate idea of the position of the fœtus; and here he would say that there was no true transverse presentation such as was figured in many text-books. In all these cases the fœtus lay obliquely in reference to the pelvic brim; the head was never far remote from the os uteri, the breech was elevated to a higher level than the head, and the knees were generally near the lower segment of the uterus—not far to seek; so that by pushing the shoulder and head on one side, whilst the external hand pressed down the breech, the fingers passed through the cervix might easily seize one or other of them. There was one point in the operation which he did not think Dr. Hicks had described with sufficient care. As soon as the knee was seized, the mode of assisting by the external hand must be changed: at this stage the right hand should be brought down so as to receive the head in the palm, which should then be pressed upwards away from the brim and iliac fossa, whilst gentle traction should be exerted upon the limb grasped by the left hand. In this manner we had the full advantage of the principle of leverage upon the two extreme poles of the child, and the version is completed with remarkable ease. He had sometimes even been enabled by this manœuvre to elevate the head and shoulder from the brim in cases of extreme difficulty, so as to give space for the introduction of the hand, which was otherwise impossible. The obstacles to this method which he had found the most difficult to deal with arose in certain cases of dead children where decomposition had advanced so far as to destroy all elasticity and resiliency in the foetal spine. Denman was, he believed, the first who clearly pointed out how the death of a child was *per se* a

cause of difficult labour, and Hohl had very fully discussed this subject. To effect evolution by acting upon one or other of both poles of the long diameter of the child, it was essential that that long diameter—represented by the spine—should preserve a certain degree of rigidity or elasticity; otherwise, when traction was exerted upon a limb, the only effect was to compress the fœtus into a mass which moulded itself to the resisting structures. Another difficulty arose in cases of premature labour, partly from the small undeveloped condition of the uterus which impeded manipulation, and partly from the want of rigidity of the fœtus—also the result of immaturity—which led to its being compressed by the spasmodic contraction of the uterus into a compact ball. With regard to the use of this method of turning in placenta prævia, he fully recognized its merit. Although insisting upon the advantage of the principles of treating placenta prævia which he himself had introduced, he was always ready to avail himself, according to the necessity of the case, of other aids. The total detachment of the placenta was not true to physiology, it was bad in practice and quite superfluous; but the partial or cervical detachment was indicated, if for no other reason, to liberate the cervix and facilitate its dilatation, and therefore turning. As chloroform had been adverted to, he had one word to say upon that point. He fully recognized the value of this agent, and constantly derived signal advantage from its use; but the most positive experience had proved to him that unless full surgical anæsthesia were induced, it sometimes rather obstructed than facilitated turning. With regard to the objection that had been urged to the bimanual method, that it was liable to cause metritis, he could only imagine that this arose from an utter misconception of the nature of the operation. Inasmuch as it was only necessary to pass two fingers into the uterus, and the operation was accomplished with less force than by the old method—if violence had anything to do with causing metritis, the least violent proceeding must be the more free from that danger. So easy was it at times, that he had, on one occasion, in a case of placenta prævia, turned and delivered a child without passing more than two fingers into the vagina; he had not even turned back or soiled the cuff of his coat. In conclusion, he expressed his deep sense of the merit and usefulness of this memoir. He firmly believed that it would exercise an important influence in improving obstetric practice in this country.

44. *Rectification of Face Presentation under Chloroform.*—MR. W. S. CARMICHAEL read before the Obstetrical Society of Edinburgh (April 29, 1863), the following communication: I attended Mrs. — with her first child. On examination, the membranes were found entire, and the presentation not easily to be recognized. I suspected either face or breech. The labour was tedious. I left the patient for some time, and on my return found the membranes ruptured, and the face presenting. Mrs. —'s general configuration, and examination *per vaginam*, by which I had found the pelvis narrow, with a hard projecting coccyx, led me to infer a tedious labour, dangerous at least to the child, if not to the mother. I therefore put her deeply under the influence of chloroform, and finding that I could without difficulty push the head above the brim of the pelvis, I was enabled to rectify the presentation. The labour thereafter was very tedious (in all 36 hours), so much so, that I had sent for the forceps; but, after waiting some time longer, delivery was accomplished naturally. The nose and both eyes clearly showed the presentation of the face. The urine required to be drawn off for a week, showing the great pressure exercised on the urethra, principally from the projection of the coccyx pressing the head against it. I think the case instructive, as showing that, by the use of chloroform, administered deeply, a presentation, rendering labour always tedious, and therefore dangerous to the mother, and of increased danger to the child, may by such means be safely rectified.

Professor Simpson remarked, that Dr. Carmichael's communication was a very important one. Rectification of face presentations had been the subject of a good deal of discussion at various times. We were taught by some authorities that face presentations could be readily converted, within the pelvic cavity, into head presentations, but it had subsequently been thought impossible as a general rule to do this, the mass turned (*viz.*, the head of the child)

being larger in one of its diameters than the pelvic cavity in which it was proposed to turn it. There were rare cases where nature had rectified the position. Dr. S. saw one such case some time ago, with Dr. Paterson of Leith. He (Dr. S.), remembered of once rectifying the position of the head, with Dr. Beilby, before the days of chloroform, when it would have been impossible to have finished the labour before changing the presentation. In that case the head was not descended into the pelvic cavity. Usually, for the reason stated, it is impossible to turn the head in the cavity of the pelvis; you must first push it up to the brim before this can be done.—*Ed. Med. Journ.*, Sept. 1863.

45. *New Cause of Unavoidable Hemorrhage.*—Dr. BRYCE, of Dalkeith, made the following communication to the Obstetrical Society of Edinburgh (June 10, 1863): "On the 4th of June, 1858, M. D. was delivered of her first child—a healthy, well-developed boy—at the full term of utero-gestation, but did not again become pregnant till the first week of January, 1862. On the 11th of June following—that is, about the fifth month and a half—abortion took place; and, after delivery, it was found that the predisposing cause of the accident had been fatty degeneration of the placenta. Her husband was from home from the above date till the 2d of August of the same year, on which date he returned for two or three days, when she again became pregnant. On both of these two last occasions, she states that she never felt so well as during her first pregnancy. At six o'clock P. M. on the 11th of last January, almost to a day the time of her former premature labour, I was again summoned to see her, when she stated that she first began to complain at four o'clock the same morning. On examination, I found the os considerably dilated, and a large bag of thick membranes presenting, and through them I could with difficulty trace the outlines of a foot. The pains had almost entirely ceased for an hour or two; and as there was no hemorrhage (and had been none), I thought it advisable to delay interference for a short time. After allowing what I considered to be sufficient time, without any signs of improvement, I ruptured the membranes, and in a few minutes the uterus again took on action, the pains recurred regularly, and with every uterine contraction hemorrhage, which entirely ceased during the intervals. A careful examination convincing me that no portion of the placenta was attached to the cervix, and being unwilling to interfere so long as the hemorrhage, though considerable, was not alarming, and so long as I was in total ignorance of the cause of the bleeding, I tried what effect the plug might have in arresting the flow of blood. The pains soon increasing in strength, the descent of the fœtus partially expelled the plug, which I then removed altogether. I examined again, and could now reach the pelvis, where I found the cord, which I was now able to trace, passing downward from its umbilical origin, over the perineum, and up the back to its placental attachment, and rendered so tense by the descent of the fœtus, that I concluded that it was preternaturally short. The child was thus ascertained to be sitting astride the cord.

"Seeing now that the forcible separation of the placenta produced by the traction on the cord, in the descent of the fœtus during each pain, was the cause of this unavoidable hemorrhage, I proceeded during an interval to rectify this abnormal position of the child; and this I with some difficulty succeeded in doing, by flexing the right thigh on the abdomen, and passing the cord over it. The hemorrhage was thus completely arrested, and, with a few more pains, the fœtus was expelled at seven P. M., followed, after the lapse of ten minutes, by a fatty battledore placenta. An over-active attendant had the placenta destroyed before I could get the cord accurately measured; but, from a rough guess, I think the total length of the cord would be about eight inches.

"In consequence of special circumstances, such as seldom come under our notice, and one of which has been already mentioned, the time of impregnation can in both cases be fixed almost to a day; in the first case, to the 2d or 3d of January, 1862, and, in the second case, to the 2d or 3d of August; and in both instances the abortion took place almost exactly at the same period of utero-gestation, or about the eighth or ninth day of the sixth month."—*Ed. Med. Journ.*, Oct. 1863.

46. *Diphtheritic Affection of the Mucous Membrane of the Uterus after Delivery; Different Local Complications in Puerperal Fever.*—Dr. ALEX. R. SIMPSON showed to the Edinburgh Obstetrical Society (May 13, 1863) a preparation of a uterus which had been sent him by his friend Dr. Yellowlees, senior assistant in the Morningside Asylum. The patient from whom the preparation had been obtained had been sent into the Asylum as a case of puerperal insanity; but her disease showed itself to be a form of puerperal fever, under which she succumbed a day or two after her admission. At the post-mortem examination, the organs had for the most part been found healthy, but the uterus presented on its inner surface a number of diphtheritic patches, which were very marked at the site of the placenta, especially at points where there were some small placental masses remaining attached to the uterus. Different local complications, as they were all aware, were liable to occur in different epidemics of puerperal fever, or even at different periods of the same epidemic. In Berlin, five years ago, he (Dr. A. R. S.) had had an opportunity of witnessing the post-mortem examination of a great many patients who died of puerperal fever during a lengthened epidemic, and of noticing how a series of them presented morbid appearances which were mainly confined to the peritoneum; and then for a time the cases would nearly all show no peritonitis, but affections of the vascular system, perhaps with secondary deposits in the lungs or other organs; whilst a third set would present chiefly morbid changes in the lymphatics and cellular tissue beside the uterus. In other rarer cases, again, no morbid change was discovered until the uterus was cut into, when, as in the case before them, a series of dingy-gray sloughy patches were seen on the inner surface of the organ; although this form of puerperal affection was sometimes found associated with some of the other local complications. In cases where the interior of the uterus had become the seat of such diphtheritic deposits, any lacerations of the vaginal canal that might have occurred during labour were usually found to present the same gangrenous appearance.—*Ed. Med. Journ.*, Oct. 1863.

#### MEDICAL JURISPRUDENCE AND TOXICOLOGY.

47. *Nitrobenzole and Aniline as Poisons.*—Dr. LETHEBY contributes an important essay on nitrobenzole. He remarks that it is on record that Thrasyas, the father of botany, was so skilled in the preparation of drugs, that he knew how to compound a poison which would remain for days in the living body without manifesting its action, and would at last kill by a lingering illness. Theophrastus speaks of this poison, and says its force could be so modified as to occasion death in two, three, or six months, or even at the end of a year or two years. The writings of Plutarch, Tacitus, Quintilian, and Livy are full of instances of what seem to be this kind of slow and occult poisoning. In fact, until recently there had been a common belief among the unlearned that a skilful poisoner could so apportion the dose and combinations of certain subtle agents that he could destroy the life of his victim with certainty, and at the same time measure his allotted moments with the nicest precision, and defy the utmost skill of the physician and the chemist. Even so late as the sixteenth century, this belief was shared by the learned of the medical profession.

The belief so long held is, according to Dr. Letheby, to an extent true. In every manufactory where nitrobenzole and aniline are prepared on a large scale, the peculiar narcotic effects of these poisons are often observed. The vapours escaping into the atmosphere are breathed by the workmen, and cause distressing headache and a heavy, sleepy sensation. For the most part, these effects are not serious, but are quickly relieved by fresh air and a mild stimulant, as a glass of brandy and water. Now and then, however, the workmen, from carelessness in their habits, expose themselves to the action of comparatively large quantities of these poisons, and then the effects are most dangerous. Two fatal cases of poisoning by nitrobenzole have been referred to Dr. Letheby by the

coroner for investigation during the last two years, and in both instances they were the results of careless manipulation. In one case a man, forty-three years of age, spilt a quantity of the liquid over the front of his clothes, and he went about for several hours in an atmosphere saturated with the poison. In the other a boy, aged seventeen years, received a little of the liquid into his mouth while sucking at a siphon. The effects were nearly the same in both cases, notwithstanding that in one the poison was inhaled and in the other it was swallowed. For some time there was no feeling of discomfort beyond that of drowsiness; gradually, however, the face became flushed, the expression stupid, and the gait unsteady—the sufferers had the appearance of persons who had been drinking. Little by little the stupor increased, until it passed into profound coma, and in this condition they died. The progress of each case was much the same as that of slow intoxication, excepting that the mind was perfectly clear until the coming on of the fatal coma. This was sudden, like a fit of apoplexy; and from that moment there was no return of consciousness or of bodily power—the sufferer lay as if in a deep sleep, and died without a struggle. The duration of each case was nearly the same; about four hours elapsed from the time of taking or inhaling the poison to the setting in of the coma, and the coma lasted for about five hours.

Previous to death there were no appearances of convulsions, but rather of narcotism and apoplexy. The face was flushed; the lips were livid; the superficial vessels of the body, especially about the throat and arms, were gorged with blood; the dependent parts were turgid; the blood was everywhere black and fluid; the lungs were somewhat congested; the cavities of the heart were full; the liver was of a purple colour, and the gall-bladder distended with bile; the brain and its membranes were turgid, and in the case of the man there was much bloody serosity in the ventricles. Analysis discovered the existence of nitrobenzole in the brain and stomach, and also of aniline.

These effects were so remarkable, that Dr. Letheby determined to examine them still further by experiments on domestic animals. Dogs and cats were submitted to the action of from thirty to sixty drops of nitrobenzole which had been well washed with dilute sulphuric acid and water, to free it from every trace of aniline. The poison was generally administered by pouring it into the mouths of the animals, but sometimes it was given by means of an œsophagus-tube. When the nitrobenzole had come into contact with the mouth, it always caused discomfort, as if from unpleasant taste, and there was profuse salivation. Its local action on the stomach, however, was never very great, for there was rarely any vomiting until the setting in of nervous symptoms, and this seemed to be due to sympathy rather than to any local irritation of the stomach. Two classes of effects were clearly observed; there was either the rapid coma which characterized the operation of the poison on the human subject, or there was a slow setting in of paralysis and coma, after a long period of inaction.

When the effects were speedily fatal, the animal was soon seized with giddiness and an inability to walk. The weakness of the limbs first appeared in the hind extremities, and was manifested by a difficulty in standing; but very soon it extended to the fore legs, and then to the head and neck. There was complete loss of voluntary power. The animal lay upon its side, with its head drawn a little back, and with its limbs in constant motion, as if in the act of walking or running. The muscles of the back were occasionally fixed in spasm, and every now and then the animal would have a sort of epileptic fit. It would look distressed, would howl as if in pain, and would struggle violently. After this it would seem exhausted, and would lie powerless. The pupils were widely dilated, the action of the heart was tumultuous and irregular, and the breathing was somewhat difficult. For some time, however, the animal retained its consciousness, for it would look up and wag its tail when spoken to; but suddenly, and often at the close of a fit, it would become comatose—the eye would remain open, but the conjunctiva would be insensible to touch, and the movements of the limbs would nearly cease; the breathing would be slow and somewhat stertorous, and the animal would appear as if it were in a deep sleep. This condition would last until it died, the time of death varying from twenty-five minutes to twelve hours after the administration of the poison.

When the action of the poison was slower, there was often no visible effect for hours or days. At first there was always a little discomfort from the taste of the poison, but this soon subsided, and then for a day or more the animal appeared to be in perfect health. It would go about as usual, would be quite lively in its movements, would eat its food heartily, and in fact would seem to be in no way affected by the poison. Suddenly, however, it would look distressed, it would have an attack of vomiting, and it would tumble over in an epileptic fit. When this had subsided, it was generally found that the animal was weak, or even quite paralyzed in its hind extremities; and after two or three of such attacks, the loss of voluntary power would extend to the fore limbs. The animal would lie upon its side perfectly helpless, and then the progress of the case was much the same as that already described, except that it was considerably slower. Consciousness, for example, would be retained for days after the animal was paralyzed, and, although it was quite unable to stand, it would take food and drink when they were put into its mouth. The condition in which it lay was most distressing; the look was anxious and full of fear; the limbs were in constant motion; and every now and then there would be a violent struggle, as if the animal was in a fit, or was making fruitless efforts to rise. This would last for days, and then there would be either a gradual restoration of voluntary power with complete recovery, or death from exhaustion. The time that elapsed from the administration of the poison to the coming on of the first symptoms—namely, the epileptic fit, varied from nineteen hours to seventy-two, in most cases it was about two days, and the time of death four days.

In commenting on these facts, Dr. Letheby dwells on their immense importance to the medical jurist and physiologist. They indicate, he thinks, a reducing power in the animal body by the conversion of nitrobenzole into aniline. He has endeavoured to ascertain whether this is due to a living or a dead process; and he finds that while contact with dead matter does convert nitrobenzole into aniline, there is a great similarity of action between the physiological effects of nitrobenzole and of aniline. The post-mortem appearances are also much the same. He adds, that not only is there a probable conversion of nitrobenzole into aniline in the living body, by a process of reduction, but that there is also undoubtedly a change of an opposite character going on upon the surface of the body, whereby the salts of aniline are oxidized, and converted into mauve or magenta purple. The author gives a case of this character, in which a boy, aged sixteen, was brought into the London Hospital in a semi-comatose condition, owing to his having breathed an atmosphere charged with the alkaline vapour while scrubbing out the inside of an aniline vat. He was suddenly seized with giddiness and insensibility. After passing through stages like those of intoxication he rallied, but it was observed that his face had a purple hue, and that the lips and lining membrane of his mouth and his nails had the same purple tint. The next day even he had the hue of a person suffering from Asiatic cholera.—*Brit. and For. Med.-Chir. Rev.*, Oct. 1863, from *Proceedings of the Royal Soc.*, part 3, 1863.

48. *Bichromate of Potassa as a Poison*.—One of the most important papers on toxicology published within the last few years is by MM. A. Chevalier and Dr. Bécourt, on bichromate of potassa. The report of these investigators, though not official, is of great public, not less than of scientific interest. It conveys to us a series of new facts in regard to a particular poisonous salt, and it proves that the effects of this poison tell on certain branches of industry, producing wholesale mischiefs.

By an accident, one of the reporters met with a man who was engaged in a manufactory of chromate of potassa, and who was suffering from a peculiar ulceration of the face; from this case they obtained an idea that the manufacture was attended with serious mischiefs, but they failed to obtain from the man any very satisfactory evidence.

At last, from the director of a manufactory at Graville, they obtained a series of facts from which they learned that the workers were subjected to disease. In transforming the neutral chromate of potassa by means of acid into bichromate, the vapour arising carries with it an infinity of pulverized molecules



of the product, which spread through the workshop. The cloud of particles is easily visible in a ray of sunlight. The molecules, inspired in abundance, give to the palate a bitter and very disagreeable taste; but as profuse salivation is the result, the chromate is thrown off in the saliva, and has not time to inflict any permanent injury. If, however, the respiration be made by the nose, the molecules are dissolved in the layer of secretion which lies on the membrane of the septum of the nose, creating a violent pricking, suffusion of tears, and irresistible sneezing. In time the membrane begins to be thrown off, and portions of it are carried into the handkerchief, used in blowing the nose; this process goes on, when once started, so rapidly that after a period of six or eight days the septum becomes thin, permeated with openings, and is ultimately detached altogether. At this point, all the symptoms that have been described cease, and the workman scarcely notices the loss of the nasal partition.

The reporters state that this process of ulceration of the septum of the nose occurs in every workman, except in those who take snuff. In these, owing to the layer of powdered tobacco which covers the membrane, and the frequent use of the handkerchief, the evil is removed, or rather prevented.

On the skin in its normal state, the epidermis being intact, the bichromate exerts no baneful influence; the hand may in fact be plunged into a concentrated and hot solution of the salt, without fear; the hand may also remain covered with the salt for an entire day, without any observed effect; but if the skin is torn or abraded, however triflingly—by the prick of a pin, for example—a sharp pain is felt on the exposure; and if the salt be left in contact with the wound, the caustic character of the salt is brought out intensely, the cutaneous tissue is decomposed, and violent inflammation is established. These symptoms are accompanied with intense pain, especially in winter, when the cold is severe; the action of the salt does not cease until the cauterization has penetrated to bone.

When a workman is clean and careful, he prevents these accidents; but if he is careless, and allows the bichromate, either in powder or solution, to touch abraded parts, or sores, or wounded surfaces, he must immediately use remedial measures, or suffer a severe penalty. In some cases, where the workmen are too lightly clad, they are attacked with violent itchings, followed by suppuration and ulceration of the moist surface of the penis, around the glans. This condition may progress until a disorder not unlike syphilitic ulceration may be presented.

The effects of the bichromate are shown on inferior animals as well as man. Horses employed in the manufactory, and which walk over the salt, are attacked in the feet; the hoof falls off, the inflammation extends to the upper part of the leg, causing the hair to fall off, even to complete denudation. From a series of facts related to the reporters by M. Clouet, a manufacturer at Havre, some important particulars are supplied. A horse employed in carrying the bichromate was attacked in one of his hind feet. The wound became so painful as to necessitate absolute rest; the master of the horse not understanding the treatment, the suppuration went on, extending through the limbs, the skin of two legs fell off, and an enormous suppurated surface invaded the almost entire half of the body of the animal. Death occurred a month after the commencement of the malady. The writer remarks that it is as though, when the decomposition had commenced, it went on indefinitely; there is a veritable metamorphosis of the cutaneous tissues and of the flesh altogether, analogous to fermentative action.

Dogs and cats are also subject to similar accidents from the bichromate. These animals, from walking amongst the refuse of the manufactory, are frequently affected; the skin of their feet becomes laid bare, and suppuration follows. In one instance, a rat, killed in a manufactory, was found to have all his feet suppurating, and partially destroyed, as if gnawed.

M. Clouet—to whom, as we have said, the report is much indebted—supplied also to the authors certain facts relating to the internal exhibition of the bichromate of potassa. He says that in a small dose, a few centigrammes, it acts as a purgative; if in larger doses, say of one gramme, it acts as a poison. In large doses, it produces colic and purging, but no vomiting. In one manufactory,

certain of the workmen placed some bichromate of potassa in a barrel of cider, as a joke. The cider was rendered of a dark colour; but, notwithstanding, other of the workmen drank the cider, and were all affected with severe colic and diarrhoea.

In a second account sent to the reporters by M. Clouet, the facts of his previous statements were confirmed, and certain further details were offered, which are of interest. Thus it was shown that both sexes were equally influenced, and at all ages; and that the affection of the septum of the nostril usually made its appearance within a week after exposure. The disease of the septum was very easily brought about in those workmen who, having stained their fingers with the chromate, put them into the nostril. M. Clouet also observed in every case, that in those men in whom the septum was entirely removed, nasal catarrh was unknown.

In respect to treatment, various observations have been carried out. As a preventive of the nasal disease, the use of snuff seems very effectual. In some cases the workmen apply a wet sponge before the nostrils when they are exposed to the vapour; and the plan seems to be advantageous. When the skin is abraded, and the chromate has produced ulceration, it is the best treatment to wash thoroughly with a feeble alkaline water; then, if inflammatory action follows, to poultice, and afterwards to apply freely subacetate of lead in solution.—*Brit. and For. Med.-Chirurg. Rev.*, Oct. 1863, from *Annales d'Hygiène Publique*, July, 1863.

49. *Poisoning by Cyanide of Potassium. Dangers to Photographers.*—Dr. DAVANNE directs attention to the dangers to which those who are engaged in the art of photography are exposed. They use constantly, he says, two of the most active poisons—namely, cyanide of potassium and bichloride of mercury. Their hands are constantly in contact with strong solutions of these poisons; and often, in spite of repeated warnings, they run absurd risks. The author gives an account of a case in which a gentleman, who had stained his hand with nitrate of silver, endeavoured to remove the stain by rubbing over it cyanide of potassium freely. In the act, he slid under the nail of one of his fingers a small portion of the cyanide salt. At first he did not notice this, but in a little time he felt a sharp pain in the part, followed, after a few minutes, by an intense vertigo, so that all objects appeared to be moving around him. To relieve him promptly, he conceived the unfortunate idea of employing vinegar; the cyanide was quickly decomposed, and hydrocyanic acid was produced absolutely. The vertigo now increased accompanied by shiverings, pallor of the face, loss of sight, and great exhaustion. The power of speech was lost, but the intelligence was preserved. The extremities were cold, and as the sight returned there was double vision. The symptoms did not pass away for ten hours.

The treatment adopted consisted of cold and friction on the spinal column, inhalation of ammonia vapour, and the administration of strong infusion of black coffee.—*Ibid.*, from *Canslatt's Jahresb.*, 1862.

50. *Effects of Emerald Green on Paper-Stainers.*—The commissioners appointed to inquire into the health of children in manufactories have published some valuable remarks on the effects of arsenical preparations on the paper-stainers. The commissioners state that the colouring matter consists sometimes of emerald green, in greater or less proportions; and when it does so, it becomes, under certain circumstances, a source of danger. The evidence of Dr. Letheby on this subject is particularly deserving of notice, as showing not only the danger to the workpeople, but to persons whose rooms are hung with these arsenical papers, and to those who wear artificial flowers similarly coloured. Dr. Letheby relates a fatal case of a child who was thus poisoned from playing in a room in a gentleman's house which was covered with this green paper. He also states, as showing the amount of arsenical matter, that he has found about a grain of pigment for every square inch of the green leaves of these flowers; adding, "I have seen a wreath with enough arsenic in it to poison twenty people."

The commissioners add—The emerald green is dangerous in this trade.

1st. If it is badly manufactured. Mr. Cook states, "Our emerald green is

peculiar. It comes from one particular place in London. It is much finer and softer to the touch—less granular, that is—than the ordinary Scheele's green, of which this is a specimen. It does occasionally vary in quality; but as a general rule, if ever we have to get some from anywhere else, our men know by the strong smell directly they open the cask that it 'won't work,' as they say—that is, that it will be loose and fly;" and Mr. Cook adds that brushing emerald greens by a machine, "if it were at all loose, must be very bad."

Mr. Smith, of Messrs. Heywoods', states that "the arsenic green is better than it used to be;" and other witnesses also are of the same opinion, that if it is well manufactured "no bad effects arise from it." It is the cheapest kind that is the most injurious. "The commoner the colour—the cheaper, that is—the worse for use. It is not properly prepared; the arsenic is not killed in it."

2d. If it is imperfectly mixed with the size. It appears that this is more likely to be the case with machine-made paper than in block-printing, inasmuch as the colour for block-printing is more "set with size," being worked "almost in a jelly;" whereas "the cylinder in the machine must have a more or less liquid colour, or it would not revolve; and so there cannot be enough size to bind in the one as in the other."

3d. If it is worked at continuously, especially with machine-made paper; the friction in rolling it up when dry, or in brushing it, causes the dust to come off.

4th. If cleanliness be not observed. J. Nail says: "The emerald green is worse, but cleanly persons are not affected by it. The boys, many of them, will not wash; but eat their meals with dirty hands, covered with paint and mess. I have seen them eat their dinner with hands smothered in lead."

That these sources of danger, being well known in the trade, are watched, and, to a considerable extent, guarded against, is shown, not only from the above evidence, but from the facts related by several witnesses connected with the large works in the North; where the printing is chiefly by machinery, and where, consequently, the greatest danger arises from the emerald green. J. Boden, at Messrs. Heywoods' works, states that he "has never known any permanent injury from working the emerald green."

The case of a boy at Messrs. Potter's who is said to have died from the effects of emerald green, G. Aspdon, is exceptional; and is, indeed, attributed by two of the witnesses, partly to detaching the chalk dust, partly to "the long hours and close confinement."—*Brit. and For. Med.-Chir. Rev.*, Oct. 1863, from *Report of Children's Employment Commission, Government Paper, 1863.*

51. *Toxicological Experiments with Turpentine.*—A series of experiments have been conducted by Dr. L. W. LIEBSCHE, to determine the effects of turpentine on animals. Rectified turpentine was placed in a wooden chamber, and after the vapour was freely diffused through the chamber, the animals were placed in it, so much air being admitted that a light placed in the chamber would burn quietly and strongly. The following are the conclusions drawn by the experimentalist: Air, when charged strongly with turpentine vapour, was injurious to all the animals subjected to it. The symptoms excited were uneasiness, dimness, tottering, reeling, want of power in the extremities, especially the hinder ones; convulsions, partial or general; difficult respiration, and great rapidity in the action of the heart. Death was produced not merely by asphyxia, but by paralysis of the nervous system. In two animals, a cat and a rabbit, death followed in the course of half an hour; while other animals, exposed to the same vapour in the chamber, recovered on being brought into the air. At the post-mortem, conducted within an hour after death of the two animals, the bodies were rigid, the vessels of the brain were found full of dark fluid blood. In the cat, the pupils were enormously dilated; in the rabbit, shortly before death, they were much contracted. The lungs were of a deep red colour, with ecchymosed spots; the right side of the heart was relaxed, and filled with fluid blood, which in the rabbit was dark; the left breast was contracted and empty. The kidneys, liver, and spleen were full of blood; the bladder was distended, but no violet smell was perceptible in the urine. The author infers from these experiments that turpentine vapour is not so dangerous to inhale as has generally been supposed, and that it is not necessary,

as a matter of police, to exclude turpentine varnish from the arts.—*Clarus in Schmidt's Jahrbücher*, Band cxvii. No. 1, 1863.

[The experiments made by Dr. Liersch confirm an observation made by a correspondent to the *Lancet*, two years ago, to the effect that turpentine administered rapidly and freely by the lungs produces results almost identical with the vapour of chloroform. Some researches of our own confirm this view. We must, nevertheless, be cautious in accepting the statement that the inhalation for many hours daily of the vapour arising from turpentine varnish is not ultimately injurious to health. We have direct evidence that so inhaled it produces giddiness, deficient appetite, and extreme anæmia, and that the system never bears it with tolerance.—B. W. R.]—*B. and F. Med.-Chir. Rev.*, April, 1863.

52. *Poisoning Properties of Thallium*.—M. LAMY, announced to the French Academy of Sciences, his discovery of the deleterious properties of this metal. Having experienced certain pains, especially in his lower limbs, while pursuing his studies on thallium, he was induced to attribute them to a noxious influence of the metal; and in order to ascertain whether such was the fact, he dissolved five grammes of sulphate of thallium in milk and offered it to two puppies, each about two months old. But after tasting the liquid they left it, and could not be induced to take any more. On the following day the milk, which had been left in the yard, had disappeared, and it soon turned out that it had been partaken of by a dog, two hens, and six ducks; for a few hours after ingestion the dog became sad and refused to eat. During the night it was seized with violent gripes, which caused it to utter piercing cries. Its features had undergone a change; its back was bent up through the effect of pain, the seat of which was evidently in the intestines. Its hind legs, after a continuance of convulsive motions, became paralyzed, and it died sixty-four hours after taking the poison. On the day before its death a hen and six ducks died, and in those which were watched in time, the paralysis of the legs was remarked. The two puppies which had scarcely touched the milk had meanwhile shown symptoms of fatigue; by degrees they were seized with convulsive trembling, and could hardly stand; then came the acute pains which ended in death, although every precaution had been taken, apparently in good time, to save their lives. All these animals being subjected to dissection, there could not be found the slightest corrosion or even inflammation of any consequence; only the gall-bladder of the dog was found considerably distended, and in some of the ducks various serous membranes, that of the liver especially, had assumed a whitish and granular appearance. As to the nature of the poison, if there could have been any doubt about it, it would have been at once dispelled by the characteristic green band peculiar to thallium in the spectral analysis of the organs of the dead animals. Eight days later another hen was taken ill. Its wings hung down, it could hardly walk, and when it wanted to peck its food, its neck seemed to have lost the power of bending down sufficiently, so that its beak did not reach the food. The hen was killed, and thallium found in the intestines, but in a very small dose indeed, and the other organs did not contain any. M. Lamy next administered a *decigramme* (a grain and a half) of the sulphate to a dog two months old, and it died forty hours after taking it. Hence, M. Lamy infers that sulphate of thallium is a powerful poison, producing pain in the intestines and paralysis of the lower members. This poison and the nitrate have but little taste, and might therefore be used for criminal purposes; but fortunately there is not a poison that can be traced with more certainty through spectral analysis than this. This new method of analysis bids fair to render excellent service in cases relating to forensic medicine.—*British Med. Journ.*, Sept. 26, 1863.

## AMERICAN INTELLIGENCE.

### ORIGINAL COMMUNICATIONS.

*Case of a Gunshot Wound of the Penis and Scrotum, with Remarkable Course of the Ball.* By ISAAC NORRIS, Jr., M. D., Act. Assistant Surgeon U. S. A. John L. Williams, Private Co. D, 96th Regiment Pennsylvania Volunteers, aged 33 years, was admitted to the McClellan U. S. Army General Hospital, near Nicetown, Philadelphia, on the 23d of June, 1863, from the Mount Pleasant Hospital, Washington, with a gunshot wound of the penis, scrotum, etc., received at the second battle of Fredericksburg, May 3d, 1863.

The ball entered nearly the centre of the glans, the penis being partially erected at the time, and taking a slightly oblique direction, passed out on the right side about an inch and a half beyond the glans to enter the scrotum, and after striking the pelvis near the symphysis, glanced off, and running round the innominatum, finally made its exit some two inches above the anus.

● A urinary fistula existed for a time before his entrance to this Hospital, which, however, finally closed; the wound cicatrized nicely under the usual treatment, and the only effects remaining were partial incontinence of urine, and an inability to assume a very erect position, requiring the use of a cane in walking. The patient also suffered from chronic rheumatism, acquired from exposure in the service, and was discharged early in September last, two months and a half after his entrance to the hospital.

Deeming this case as one of great interest from the rarity of these injuries, I have drawn up the above brief account, from notes made at the time.

McCLELLAN U. S. A. HOSPITAL, Oct. 12th, 1863.

---

### DOMESTIC SUMMARY.

*Astigmatism.*—Dr. F. J. BUMSTEAD, Surgeon to the New York Eye and Ear Infirmary, has published (*American Medical Times*, Oct. 31, 1863) a very interesting case of this defect of vision which recently came under his care; and in a subsequent number (Dec. 12, 1863) of the same journal, Dr. DERBY, Surgeon to the Massachusetts Charitable Eye and Ear Infirmary, relates four cases of the same affection.

In the edition of Mr. Lawrence's Treatise on the Diseases of the Eye, published in Philadelphia in 1843, the editor of this journal related a very interesting case of astigmatism, and in a subsequent edition of the same treatise (Philadelphia, 1854) he related two other cases which came under his own observation, and he has since met with several others. This affection would therefore seem not to be a very uncommon one, and should be better understood by the general practitioner than it seems to be.

For the due performance of its functions as an optical instrument, it is necessary that certain parts of the eye should be transparent and of normal density, that the surfaces of the cornea and of the crystalline lens should present certain

regular and definite curvatures, and that the crystalline lens should be accurately adjusted, both as regards its own axis (that of the visual axis of the eye) and its relative distance from the cornea and retina. So many conditions being requisite for perfect vision, it is less surprising that defects of this organ should be met with, than that they should be ever absent.

The name Astigmatism (from  $\alpha$ , priv., and  $\sigma\tau\epsilon\gamma\mu\alpha$ , a point) was given to the defect under consideration by the Rev. Dr. Whewell, and is appropriate, the difficulty arising from the rays of light which fall upon the eye not being equally refracted to a point.

Both Dr. Bumstead and Dr. Derby seem to think that this defect arises always from an abnormal condition of the cornea, which instead of presenting "a surface of revolution with the curvatures of all its sections equal," has curves which vary to a greater or less degree.

This we regard as a too limited view of the subject. Astigmatism may arise, as we have already pointed out (*Lawrence on the Diseases of the Eye*, Philadelphia, 1854, p. 668) from a defect either in the curvature of the cornea or of the lens, and, according to Dr. Young, also to an obliquity of the cornea and crystalline with respect to the visual axis. If the surface of the cornea, that of the anterior or of the posterior surface of the crystalline lens, present a surface of revolution of a cylinder instead of a sphere, *i. e.*, if either of these three surfaces instead of being a surface of revolution, in which the curvature of all its sections through the axis are equal, should present a surface in which the curvature in one plane is greater than in that at right angles to it, astigmatism would result.

Ten years ago, we pointed out (*Lawrence, op. cit.*, p. 668) the mode by which it might be ascertained whether astigmatism arose from a defect in the curvature of the cornea or of that of the anterior or of the posterior surface of the lens. The image of a lighted candle reflected from the defective surface will be distorted, in the same manner as when we view our own image reflected from a cylindrical surface; and the direction in which the image is elongated shows the direction of the axis of the cylinder.

This defect of vision can generally be relieved by appropriate glasses, and in the cases which have come under our observation we have obtained such glasses from the Messrs. McAllisters, Opticians, of Philadelphia. In some instances the glass required was plane on one surface and concavo-cylindrical on the other; in other cases glasses plane on one side and convexo-cylindrical on the other were needed. Mr. Airy, the Astronomer Royal, who has minutely described this defect in his own eye (*Transactions of the Cambridge Philosophical Society*, vol. ii. p. 267, and vol. viii. p. 361, 1827 and 1849) found that a spherico-cylindrical lens completely corrected it, so that one of his eyes which had been useless became as useful as the other.

Prof. STOKES, of Cambridge, has constructed an instrument for determining the nature of the lens required to correct the vision of astigmatic eyes, which he described to the British Assoc. in 1849.

If we trace the history of astigmatism from the time of Dr. THOS. YOUNG, one of the most erudite physicians and philosophers of his day, who laboured under this defect in one of his eyes, and described it in 1801, down to the present day, we shall find that we owe most of our knowledge of it to British philosophers; and if its frequency was not recognized, we conceive it is hardly just to say that neither "the symptoms nor the treatment of the disease were fully appreciated until the publication in 1862 of Prof. DONDER'S work, entitled *Astigmatismus und Cylindrische Glaeser*.

Most of the recent writers in this country, on eye affections, entirely repudiate the long accepted maxim "Nullius addictus jurare in verba magistri.

*Spotted Fever.*—Dr. E. W. JENKS states (*Buffalo Med. and Surg. Journ.*, Oct. 1863), that this disease prevailed quite extensively during the past winter and spring in La Grange Co. and other portions of Northern Indiana.

The most striking characteristics of the disease, as observed by him, were the suddenness of attack, and in fatal cases, the sudden termination. "Most of the patients were attacked with a chill, following which would be the sudden occur-

rence of headache, mostly in posterior region of the head, with severe spinal pain, sometimes extending to the limbs. Soreness of the flesh of all parts of the body was complained of in almost every instance, so as to elicit tokens of suffering whenever the patient was moved, even in those cases where there appeared to be almost complete stupor. In the majority of cases the head was drawn back, and no proper amount of force could bring the chin to the breast. Immediately following these symptoms, and in some cases simultaneous with them, was the characteristic eruption, which was of a dark purple colour, non-elevated, and not receding upon pressure; there would also be some lighter coloured spots, making a graduation of colour from the dark ecchymoid spots, to those of a light red. There was no uniformity in the size of these spots, some were not larger than a pin's point, while some were one-half to three-fourths of an inch in diameter. In one case I saw, in addition to the spots I have described, several large elevated spots, of the size of a twenty-five cent piece, of very dark colour, presenting outside of the dark colour a blistered appearance. Dr. Fletcher, of Lima, Ind., informed me that in several instances he observed these elevated blistered spots.

"There was sometimes vomiting in the commencement of the attack with an abhorrence of food. I neither observed or heard of any case of diarrhoea or abdominal tenderness; in every case there was obstinate constipation. The febrile symptoms varied, in the sudden fatal cases none followed the chill, but the pulse was feeble and the skin cold. In none of the cases was there a strong, full pulse, and the heat of the surface was less in all cases than is usually observed in acute diseases. Dr. George Fletcher, of Lima, Ind., with whom I saw some cases of this disease, and to whom I am indebted for an account of some of his observations, says that in one case which recovered, the patient lost permanently the use of one eye, there being complete amaurosis. In another case there was strabismus and curvature of the spine, which continued at last accounts, several months after. In one fatal case I saw, there was swelling of the cervical and sub-maxillary glands. There was not complete delirium in any case, the tendency was more to stupor than delirium; the patients could usually be aroused so as to give intelligent answers to questions; in all fatal cases the patients died comatose.

"In one case only was I permitted a post-mortem examination. The patient, a girl aged 13, went to bed at night apparently well; getting up in the night to obtain a drink of water she suddenly lost the use of her limbs. Her parents not hearing her return to bed, got up and found her on the floor; she said she could not walk, and complained of cold, headache, and soreness of limbs. I saw her the next morning; she was lying with her head thrown back, the surface of the body was cold, and covered with the characteristic symptoms; the pulse was slow and feeble, the pupils were dilated, the bowels were neither distended or tender. She was in a state of stupor, yet when aroused would complain of severe pain in head, back and limbs. The next day there were more febrile symptoms, yet at no time as manifest as is usual in acute diseases. In this case only did I see any glandular swellings about the neck. She remained in about the same condition until the third day, and then died comatose. Autopsy was made twelve hours after death. The brain was found very much congested, the veins being distended to their utmost capacity; there was a small amount of serum effused at the base of the brain, and there appeared to be a slightly softened condition of the upper portion of the spinal cord. The left cavities of the heart were entirely empty, while those of the right side were filled with very dark coloured blood, with small amount of coagula. The dependent portions of the lungs only were congested, otherwise they had a healthy appearance. I regret that I was not allowed time to examine the abdominal viscera.

"Without giving the details of treatment in any of the cases of 'spotted fever,' I would merely say that the treatment most successful, was upon the sustaining plan, viz., brandy, quinine, beef tea, and tinct. ferri mur.

"The mortality of spotted fever was very great; in the majority of fatal cases they were speedily fatal; the commencement of the attack was the time to be watchful; those patients that lived several days were quite apt to recover, although recovery was very slow."

*Enormous Hypertrophy of the Os and Cervix Uteri, forming an External Tumour; Entirely Relieved by Excision.*—The Boston Med. and Surg. Journ. for Dec. 4, 1862, contains the following interesting case of this character, communicated by Dr. H. A. MARTIN, Surg. U. S. V.

"Mrs. M., negress, aged 55, formerly a slave in Alabama. She gave birth to her first child twenty-seven years since; labour was not unusually severe, and nothing unusual followed it. Her second labour took place twenty-four years since, and was natural, but two months afterwards she noticed a tumour protruding from the vulva. Seven years after this, she miscarried in the fifth month. The next year she became again pregnant, went to her full time, and after an extremely tedious and exhausting accouchement of six days was delivered, without instrumental aid, of a living male child. During the entire term of pregnancy and parturition, the tumour, now of greatly increased size, continued to be external. The patient assures me that the child passed through this external tumour in the act of delivery. She again became pregnant in three years, but miscarried in the fifth month, and within the following year was again twice pregnant and each time miscarried in the third month.

"Mrs. M. first became my patient about twelve years since. I found her suffering from extreme pain in the inguinal and lumbar regions, but not confined to these, with tenderness of the entire abdominal surface—symptoms, in fact, of severe dysmenorrhœa. She had suffered from such attacks, generally at the menstrual period, for many years, and their severity had been greater at each successive attack.

"On examination of the tumour, which protruded from the vulva, I found it of the form and of about three-fourths of the size of the plaster cast which accompanies this narrative. In this necessarily very hastily written paper, I cannot give anything like a history of the case for the twelve years it has been in my care, nor would it be of much interest to know of the many contrivances which I made, with a view to promote the patient's comparative comfort; for the adaptation of neither of them was followed by more than very partial success. Among other devices, I made a gigantic pessary, in the manner of Simpson and Valleix, with an intra-uterine stem nearly as large as the fore-finger, rising from a shield three inches in diameter. This was connected with a steel wire of proper curve and elasticity, and attached to an abdominal belt. From this contrivance I expected great things, and attained greater than, I think, has, in the hands of anybody but Simpson, been found to result from the employment of the 'great original' from which it was drawn. I think that such an instrument might be of some use for a patient not obliged to make any considerable exertion; but cases of '*Procidentia*' in its various forms are found generally among those who drag out a weary existence at the hard price of constant toil. In the case of Mrs. M., the pressure made by the tumour itself and by the action of the abdominal muscles on the uterine mass during her daily labour, was found too great for any amount of mechanical support which could be thus supplied, and the machine was abandoned, as were all others, except a bag of strong but soft linen made to fit the tumour loosely and attached to a perineal bandage and an abdominal belt. This she continued to wear till the removal of the tumour. Mrs. M. continued to suffer from the attacks referred to, and to such an extent that, for perhaps the third part of each year, she was confined to her bed, helpless and suffering extremely. Rest, in the recumbent position, the free use of opiates, and fomentations to the abdominal surface, constituted the chief treatment. At ordinary times the tumour was painless, even on pressure, but at the period of the attacks became very sensitive, and particularly at the portions of its surface which were ulcerated. It was my practice to cover the entire protrusion with woven lint spread with simple cerate or ointment. Beyond these merely palliative measures, I thought much as to how I might afford some more enduring relief to the patient, for she was poor and grateful for every kindness; she was one of those of whom Boerhaave (who did not always practise as he preached) said, 'The poor are our best patients, for God is their paymaster.' Certainly the gratitude and attachment of this poor woman has been the very best and richest professional fee I have ever received. I touched the ulcers with the nitrate of silver often enough to ascertain that such treatment would be ineffi-



cacious in this instance. During the first years of my attendance, it was possible to return the tumour within the vagina, so that its distal extremity lay just within the vulva. I found, however, that when retained in this position for a few hours, abdominal uneasiness commenced and increased, threatening one of the attacks from which so much suffering was experienced. I abandoned, therefore, any attempt to diminish the vulvar aperture by an operation for this reason, and because, also, I felt assured that the septum produced by the union of the vaginal surfaces would not resist the constant pressure of so large a mass. I then took into consideration plans for the removal of a considerable portion of the diseased mass, and concluded that, when menstruation should have ceased, I would do so by amputation or resection. The patient was about 46 years of age, and menstruated regularly, but it was to be supposed that she would not much longer. I told her that, when menstruation should have ceased, I would operate, and she consented; but month after month and year after year passed on, and regular menstruation continued.

"In the spring of 1861, offers having been made to me of a desirable position in the army, I contemplated leaving Roxbury, and Mrs. M. begging me to do anything before my departure which might afford her permanent relief in my absence, I proposed and performed the amputation of the entire os and a large portion of the cervix uteri on the 29th of May.

"The patient was instructed to take moderate doses of castor oil on each of the two days preceding that appointed for the operation, and on the morning of the day a light breakfast of gruel. The following measurements of the protruded mass were ascertained previous to the operation. From anterior commissure of labia to extremity of tumour,  $4\frac{1}{2}$  inches. From posterior commissure to extremity of tumour, 5 inches. Diameters—transverse,  $3\frac{1}{2}$  inches; vertical,  $3\frac{1}{2}$  inches. A catheter introduced into the os could be passed up three inches without meeting any obstruction; at that point the canal narrowed, but, by slight manipulation, the instrument passed five and one-quarter inches further, till its extremity was stopped by the *fundus* of the organ. At and about the os were five ulcers, from the size of that obsolete coin the quarter dollar, to about half that size. Transversely on posterior aspect,  $2\frac{1}{2}$  inches from its extremity, and corresponding to the point where, when the patient was seated, the tumour was bent upon itself, was a narrow ulceration two inches in length. It was decided to amputate at a point one-fourth of an inch above the upper edge of this ulcer, or two and three-quarter inches from the end of the tumour posteriorly and two and a half inches from the end anteriorly. I apprehended that hemorrhage might be troublesome, not from the dense tissue of the cervix itself, but from the hypertrophied parts around it. I prepared, therefore, to surround the mass with the wire of a strong ecraseur, divide the tissue down to the uterus with this instrument as fully as possible, and complete the operation with the knife. Previously to putting the patient into the anæsthetic condition, a cast was taken of the tumour *in situ*, which served as a mould for that which I gave you the other day, and which gives a perfect idea of its size and form just before removal. Anæsthesia was induced by my friend Dr. Nathan Hayward, then of Roxbury, but since and now, Surgeon of the 20th Regiment Mass. Volunteers, whose aid and counsel in every step of this operation, as of many others, was of the greatest value to me. An incision to the depth of about an eighth of an inch was made around the protrusion at the point before mentioned; into this circular incision the wire of the ecraseur was placed, and its tightening was commenced and continued in the usual manner. When the integuments of the uterine mass were partially divided, the wire was cut by the imperfectly finished edge of the steel canal through which it passed. The ecraseur was consequently abandoned, and the operation completed by the knife. In dividing the tumour, I varied from the line at first intended, so as to include, in the part removed, a still larger portion of the uterine tissue. After the amputation was completed, the stump, of a form so concave as to nearly resemble a hollow cone, was retracted within the vagina, with the exception of a portion of the posterior integument (attached, in the specimen, by a thread to the larger mass), which was also removed.

"The hemorrhage was not great. No vessels were tied, nor do I think that any means more than the application of ice and of the solution of perchloride of

iron would have been needed, with a view to its arrest, were it not that my orders in regard to the light breakfast were disregarded, and a regal repast of 'greens' substituted for the frugal one of gruel which I had directed. The consequence was that, when the effect of the chloroform had partially subsided, violent vomiting came on and continued, very seriously to the operator's discomfort in many ways, and, of course, increasing the danger of continued oozing from the wound. A considerable mass of cotton 'wool,' saturated in a solution of perchloride of iron, was introduced into the vagina, which was afterwards perfectly 'plugged' with dry cotton; a band placed around the abdomen, to which a perineal bandage was attached, and the whole securely fastened so as to resist the violent downward abdominal pressure accompanying the vomiting. The next morning, this dressing was removed; there had been no hemorrhage, nor was there subsequently, nor was any dressing used except a piece of patent lint smeared with cerate, which was each day thrust up the vagina, so as to come into contact with the wounded surface; even this was discontinued in about ten days, long before which time the patient had been sitting up, and feeling quite well.

"On the 20th day of June (twenty-one days after the operation), I went to Fortress Monroe and left my patient doing very well, 'up and about' every day; the discharge from the vagina was very slight, and the portion of the wound remaining uncicatized was not larger than a quarter of a dollar.

"Three months after this time, I was summoned to Mrs. M. and found her suffering extremely. An examination revealed an entire occlusion of the uterine canal, and the cause of the suffering to be a retention of the menstrual fluid; an opening with a narrow bistoury was easily made, and gave issue to the immediate cause of trouble. I have twice since had occasion to repeat this operation for the same reason; the last time was about three months since, when I took occasion not only to open the canal, but also to resect a portion of its walls at the point where it was contracted. Yesterday, I examined the patient and found a sufficient opening to exist, and its appearance leads me to hope that it will not again become occluded. At the same time, I introduced a probe to the fundus, and found the length of the uterine cavity to be just  $4\frac{1}{2}$  inches. I twice attempted to prevent the closure of the uterine cavity by the introduction of smooth tubes of silver and gutta percha, but in both instances such a degree of pain and sympathetic disturbance rapidly supervened that further similar attempts were not made.

"In concluding this very imperfect narrative, I would state that the result of the operation has been all that could be desired. When it was first suggested to the patient, I was not aware of the labors of Huguier, whose elaborate and exhaustive work, with its numerous illustrations, I have only met with during the last year.

"I diagnosticated the case to be one of pure hypertrophy of the os and cervix, and nothing more, notwithstanding its great size, and had long before concluded, from a careful perusal of Lisfranc's cases, that any simple hypertrophy of the os and cervix might be safely removed for good cause. I am aware that I might extend this report almost indefinitely, with the usual historical preface and peroration; such additions might not, to a certain extent, be destitute of a good deal of interest. Extreme occupation, arising from my approaching departure for a very distant post, precludes, however, anything of the sort at present. I would, however, indicate, to those desirous of studying the subject of these operations further, that the great work is that of Huguier, of some three or four hundred pages quarto, and very numerous large plates."

*The Yellow Colour of the Skin in Yellow Fever due to the Presence of Hæmatoidine.*—Dr. S. FLEET SPEIR has published in the *Am. Med. Times* (Nov. 7, 1863) a case of yellow fever, with the post-mortem and microscopical examination, which lead to some interesting conclusions.

The following is given as the result of the *microscopical examination*: "The contents of the stomach and intestines were acid, and contained altered blood-corpuscles, and abundant granules of hæmatoidine. *Liver*.—Its cells were large, and some of them fatty, but the greater portion presented the appearance of advanced waxy degeneration; there was abundance of hæmatoidine and a few

blood-crystals. *Heart*.—Granules of hæmatoidine, muscular fibres undergoing molecular degeneration. *Kidneys*—fatty; granules of hæmatoidine. *Spleen*—softened; abundant granules of hæmatoidine. *Pancreas* and *supra-renal* capsules contained hæmatoidine. The skin and conjunctiva contained abundant granules of hæmatoidine, and seemed to derive their yellow colour from the presence of this substance. *Blood*.—Some of the corpuscles were found altered and broken down."

The examination of a case reported a few weeks before in the same journal, led Dr. S. "to believe that the presence of hæmatoidine in the skin and tissues might give rise to a yellow coloration of the same, similar to that supposed to be produced by the colouring matter of the bile, in cases of yellow fever, jaundice, etc. The examination of this second case seems to verify such a suggestion.

"The pathology of the two cases was very similar. In each the principal lesion was an altered condition of the blood, and its extravasation in large quantities into the alimentary canal, and among all the tissues and organs of the body. In the first case the extravasated blood acquired a very dark colour, and produced a purplish colouration of the tissues. In the second case the extravasated blood had undergone changes of a different nature, and assumed a lighter colour, producing a yellow colouration of the tissues, and particularly of the skin and conjunctiva.

"These examinations were carefully made, and are believed to be accurate. The following conclusions are therefore deduced from them. 1st. This was a genuine case of yellow fever; 2d. Its principal lesion was an altered condition of the blood, and its extravasation among the tissues and organs of the body; 3d. The colouration of the skin and tissues was produced by the extravasation and decomposition of the blood, its hæmatine changing into hæmatoidine, and producing a yellow colouration; 4th. In cases of 'blood disease,' characterized by the extravasation of blood among the tissues, the latter may assume a variety of colours, depending upon changes of colour during the decomposition of the hæmatine and the presence of hæmatoidine.

"The well-known changes of colour which take place around ecchymotic spots and old extravasations, also the colour of the corpora lutea, the yellow softening of the brain, and the varieties of colour in pigments, seem to confirm these statements, all of them being due to the presence of hæmatoidine."

*Properties and Composition of the Ridgewood Disinfecting Powder*.—The Section of Public Health and Legal Medicine of the New York Academy of Medicine, report through their chairman, Dr. Gaisoom, very favourably respecting the disinfecting properties of the Ridgewood Powder.

The composition of the powder is given as follows: Carbolic acid, five to eight per cent.; sesquichlor. ferri, two to five per cent.; charcoal or pulverized pumice, five per cent.; lime, from magnesian limestone, five per cent.; Fuller's earth, seventy to eighty per cent.; and a trace of the sulphates of potash and soda.

After reporting some tests to which the powder was subjected by the committee, and adducing corroborating evidence derived from reports of several military hospitals at Washington, the committee say: From the facts above reported, and an examination of these components, it is manifest that this powder is a valuable addition to the list of deodorizers, and disinfectants, and that while others, as the nitrate of lead, chloride of zinc, and permanganate of potass, are equally efficacious, and perhaps better adapted to some necessities, especially about the persons of the sick in hospital wards, etc., the greater cheapness of the Ridgewood powder must commend it in all other localities, and for general use.—*Am. Med. Times*, Oct. 10, 1863.

# LONG ISLAND COLLEGE HOSPITAL, AT BROOKLYN, N. Y.

The Session for 1864 will begin on Tuesday, March 9, and continue sixteen weeks.

## COUNCIL.

T. L. MASON, M. D., *President.*

C. L. MITCHELL, M. D., *Secretary.*

WM. H. DUDLEY, M. D., *Registrar.*

J. H. HENRY, M. D.

## FACULTY.

AUSTIN FLINT, M. D., Prof. of Practical Medicine and Pathology.

FRANK H. HAMILTON, M. D., Prof. of Military Surgery and Hygiene, and Fractures and Dislocations.

JOSEPH C. HUTCHISON, M. D., Prof. of Surgery and Surgical Anatomy.

DEWITT C. ENOS, M. D., Prof. of General and Descriptive Anatomy.

EDWIN N. CHAPMAN, M. D., Prof. of Obstetrics and Diseases of Women and Children, and Clinical Midwifery.

AUSTIN FLINT, JR., M. D., Prof. of Physiology and Microscopic Anatomy.

DARWIN C. EATON, M. D., Prof. of Chemistry and Toxicology.

WILLIAM GILFILLAN, M. D., Prof. of Materia Medica and Therapeutics.

S. FLEET SPEIR, M. D., Demonstrator of Anatomy.

ROBERT NEWMAN, M. D., Prosecutor to Prof. of Surgery.

## FEES.

Full Course . . . . . \$100 00

Matriculation . . . . . 5 00

Demonstrator's . . . . . 5 00

Graduation . . . . . 25 00

Hospital tickets . . . . . Gratuitous.

Good board with lodging may be obtained in the vicinity of the College for from \$4 to \$5 a week.

Letters addressed to any Member of the Council will receive attention.

[BROOKLYN, Nov. 13, 1863.]

## HARVARD UNIVERSITY.

### SUMMER SESSION OF THE MEDICAL DEPARTMENT.

THE Annual Course of Summer Instruction in the Medical Department of Harvard University will commence at the Massachusetts Medical College, in North Grove Street, Boston, on Monday, March 14, 1864, and continue till November.

Clinical, Medical and Surgical Instruction will be given at the Massachusetts General Hospital, adjoining the College.

Recitations from approved text-books will be held daily during the session at the College, upon all branches necessary to a medical education. Occasional lectures are also given, and demonstrations, illustrated by the Museums of the College.

During the Summer Session, instruction is given by lectures at Cambridge, on Botany, by Prof. Gray; on Comparative Anatomy, by Prof. Wyman; on Zoology, by Prof. Agassiz; on Acoustics and Optics, by Prof. Lovering. To these lectures, students of the Summer Session will be admitted without extra charge.

Good Board can be obtained at \$3 50 or \$5 00 per week.

Fees for the Summer Term (which must be paid in advance), \$100, without extra charge for Matriculation, Hospital, Library or Dissections; for six months, \$100; for three months, \$50.

D. HUMPHREYS STORER, M. D., Professor of Obstetrics and Medical Jurisprudence.

JOHN B. S. JACKSON, M. D., Professor of Morbid Anatomy.

HENRY I. BOWDITCH, M. D., Professor of Clinical Medicine.

OLIVER W. HOLMES, M. D., Professor of Anatomy and Physiology.

GEORGE C. SHATTUCK, M. D., Hersey Professor of the Theory and Practice of Medicine.

HENRY J. BIGELOW, M. D., Professor of Surgery and Clinical Surgery.

JOHN BACON, M. D., Professor of Chemistry.

EDWARD H. CLARKE, M. D., Professor of Materia Medica.

DAVID W. CHEEVER, M. D., Demonstrator.

WM. E. COALE, M. D., Assistant in Theory and Practice.

FRANCIS MINOT, M. D., Assistant in Theory and Practice.

RICHARD M. HODGES, M. D., Assistant in Surgery.

CALVIN ELLIS, M. D., Assistant in Morbid Anatomy.

J. NELSON BORLAND, M. D., Assistant in Clinical Medicine.

JAMES C. WHITE, M. D., Assistant in Chemistry.

FITCH E. OLIVER, M. D., Assistant in Materia Medica.

HORATIO R. STORER, M. D., Assistant in Obstetrics.

Tickets to the Session must be procured before students will be admitted to the Course.

D. HUMPHREYS STORER, Dean of the Faculty.

No. 182 Tremont Street, Boston.

Circulars can be obtained gratis, upon application to David Clapp, Medical and Surgical Journal Office, over 334 Washington Street, Boston.

Jan 1st 1864

# MEDICAL AND SURGICAL PUBLICATIONS.

## TO THE READERS OF THE MEDICAL JOURNAL.

The greatly enhanced cost of materials and labor has at length obliged us to make a small increase in the price of some of our books, and we have been forced in a few instances to change the style of binding from leather to cloth, in consequence of the increased difficulty of procuring a full supply of the superior quality of leather which we require for our publications. We have made these changes with reluctance, and can only hope that we may not be forced to further modifications by a continued increase of cost.


For the present, therefore, the prices on this Catalogue are those at which our books can generally be furnished by booksellers, who can readily procure for their customers any which they may not have on hand. Where access to bookstores is not convenient, we will forward them at these prices, *free by mail*, to any post office in the United States. In all cases the amount must accompany the order, as we open accounts only with dealers; we assume no risks of the mail, either on the money or the books, and we can supply nothing but our own publications. Gentlemen desirous of purchasing will, therefore, find it more advantageous to deal with the nearest bookseller whenever practicable, or to send orders through their merchants visiting the larger cities.

BLANCHARD & LEA.

PHILADELPHIA, January, 1864.

\* \* We have recently issued an **ILLUSTRATED CATALOGUE** of Medical and Scientific Publications, forming an octavo pamphlet of 80 large pages, containing specimens of illustrations, notices of the medical press, &c. &c. It has been prepared without regard to expense, and will be found one of the handsomest specimens of typographical execution as yet presented in this country. Copies will be sent to any address, by mail, free of postage, on receipt of nine cents in stamps.

Catalogues of our numerous publications in miscellaneous and educational literature forwarded on application.

 The attention of physicians is especially solicited to the following important new works and new editions, just issued or nearly ready:—

Bowman's Medical Chemistry, a new edition,	See page 292
Barclay on Medical Diagnosis, second edition,	" 293
Brande and Taylor's Chemistry,	" 294
Dalton's Human Physiology, 3d edition,	" 298
Dunglison's Medical Dictionary, a revised edition,	" 300
Ellis' Formulary, new edition,	" 301
Erichsen's System of Surgery, a revised edition,	" 32
Flint on the Heart,	" 302
Gross's System of Surgery, second edition,	" 304
Gray's Anatomy, Descriptive and Surgical, 2d edition,	" 305
Hamilton on Fractures and Dislocations, second edition,	" 306
Hodge's Midwifery,	" 307
Meigs' Obstetrics, fourth edition,	" 309
Parrish's Practical Pharmacy, a new edition,	" 313
Stillé's Therapeutics and Materia Medica,	" 315
Simpson on Diseases of Women,	" 315
Salter on Asthma,	" 316
Sargent's Minor Surgery, new edition,	" 318
Watson's Practice of Physic,	" 318
Wilson on the Skin, fifth edition,	" 319
West on Diseases of Women, second edition,	" 320

NO INCREASE OF PRICE.

**TWO MEDICAL PERIODICALS, FREE OF POSTAGE,**

Containing about Fifteen Hundred large octavo pages,

**FOR FIVE DOLLARS PER ANNUM.**

**THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES**, subject to postage, when not paid for in advance, - - - - - \$5 00  
**THE MEDICAL NEWS AND LIBRARY**, invariably in advance, - - - - - 1 00  
 OR, BOTH PERIODICALS mailed, FREE OF POSTAGE (as long as the existing rates are maintained), to any post-office in the United States, for Five

It will be observed that notwithstanding the great increase in the cost of production, the subscription price has been maintained at the former very moderate rate, which has long rendered them among the

### **CHEAPEST OF AMERICAN MEDICAL PERIODICALS.**

The publishers trust that this course will be responded to by the profession in a liberal increase to the subscription list.

## **THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES,**

**EDITED BY ISAAC HAYS, M. D.,**

is published Quarterly, on the first of January, April, July, and October. Each number contains about two hundred and seventy large octavo pages, handsomely and appropriately illustrated, wherever necessary. It has now been issued regularly for more than forty years, and it has been under the control of the present editor for more than a quarter of a century. Throughout this long period, it has maintained its position in the highest rank of medical periodicals both at home and abroad, and has received the cordial support of the entire profession in this country. Its list of Collaborators will be found to contain a large number of the most distinguished names of the profession in every section of the United States, rendering the department devoted to

### **ORIGINAL COMMUNICATIONS**

full of varied and important matter, of great interest to all practitioners.

As the aim of the Journal, however, is to combine the advantages presented by all the different varieties of periodicals, in its

### **REVIEW DEPARTMENT**

will be found extended and impartial reviews of all important new works, presenting subjects of novelty and interest, together with very numerous

### **BIBLIOGRAPHICAL NOTICES,**

including nearly all the medical publications of the day, both in this country and Great Britain, with a choice selection of the more important continental works. This is followed by the

### **QUARTERLY SUMMARY,**

being a very full and complete abstract, methodically arranged, of the

### **IMPROVEMENTS AND DISCOVERIES IN THE MEDICAL SCIENCES.**

This department of the Journal, so important to the practising physician, is the object of especial care on the part of the editor. It is classified and arranged under different heads, thus facilitating the researches of the reader in pursuit of particular subjects, and will be found to present a very full and accurate digest of all observations, discoveries, and inventions recorded in every branch of medical science. The very extensive arrangements of the publishers are such as to afford to the editor complete materials for this purpose, as he not only regularly receives

### **ALL THE AMERICAN MEDICAL AND SCIENTIFIC PERIODICALS,**

but also twenty or thirty of the more important Journals issued in Great Britain and on the Continent, thus enabling him to present in a convenient compass a thorough and complete abstract of everything interesting or important to the physician occurring in any part of the civilized world.

To their old subscribers, many of whom have been on their list for twenty or thirty years, the publishers feel that no promises for the future are necessary; but those who may desire for the first time to subscribe, can rest assured that no exertion will be spared to maintain the Journal in the high position which it has occupied for so long a period.

By reference to the terms it will be seen that, in addition to this large amount of valuable and practical information on every branch of medical science, the subscriber, by paying in advance, becomes entitled, without further charge, to

## **THE MEDICAL NEWS AND LIBRARY,**

a monthly periodical of thirty-two large octavo pages. Its "NEWS DEPARTMENT" presents the current information of the day, while the "LIBRARY DEPARTMENT" is devoted to presenting standard works on various branches of medicine. Within a few years, subscribers have thus received, without expense, many works of the highest character and practical value, such as "Watson's Practice," "Todd and Bowman's Physiology," "Malgaigne's Surgery," "West on Children," "West on Females, Part I.," "Habershon on the Alimentary Canal," "Simpson on Females," &c.

The work selected for the year 1864, commencing in the number for January, is

### **CONSUMPTION; ITS EARLY AND REMEDIABLE STAGES.**

**BY EDWARD SMITH, M. D.,**

Assistant Physician to the Brompton Consumption Hospital, &c.

The special experience of the author in the treatment of this disease invests his work with a practical authority which cannot but render it satisfactory to subscribers.

It will thus be seen that for the small sum of FIVE DOLLARS, paid in advance, the subscriber will obtain a Quarterly and a Monthly periodical,

### **EMBRACING ABOUT FIFTEEN HUNDRED LARGE OCTAVO PAGES.**

Those subscribers who do not pay in advance will bear in mind that their subscription of Five Dollars will entitle them to the Journal only, without the News, and that they will be at the expense of their own postage on the receipt of each number. The advantage of a remittance when ordering the Journal will thus be apparent.

Remittances of subscriptions can be mailed at our risk, when a certificate is taken from the Postmaster that the money is duly inclosed and forwarded.

Address **BLANCHARD & LEA, PHILADELPHIA.**

**ASHTON (T. J.),**

Surgeon to the Blenheim Dispensary, &c.

**ON THE DISEASES, INJURIES, AND MALFORMATIONS OF THE RECTUM AND ANUS;** with remarks on Habitual Constipation. From the third and enlarged London edition. With handsome illustrations. In one very beautifully printed octavo volume, of about 300 pages, extra cloth. \$2 00.

The most complete one we possess on the subject. *Medico-Chirurgical Review.*

We are satisfied, after a careful examination of the volume, and a comparison of its contents with those of its leading predecessors and contemporaries, that the best way for the reader to avail himself of

the excellent advice given in the concluding paragraph above, would be to provide himself with a copy of the book from which it has been taken, and diligently to con its instructive pages. They may secure to him in any triumph and fervent blessing.—*Am. Journal Med. Sciences.*

**ALLEN (J. M.), M. D.,**

Professor of Anatomy in the Pennsylvania Medical College, &c.

**THE PRACTICAL ANATOMIST;** or, The Student's Guide in the Dissecting-room. With 266 illustrations. In one handsome royal 12mo. volume, of over 600 pages, extra cloth. \$2 25.

We believe it to be one of the most useful works upon the subject ever written. It is handsomely illustrated, well printed, and will be found of convenient size for use in the dissecting-room.—*Med. Examiner.*

However valuable may be the "Dissector's Guides" which we, of late, have had occasion to

notice, we feel confident that the work of Dr. Allen is superior to any of them. We believe with the author, that none is so fully illustrated as this, and the arrangement of the work is such as to facilitate the labors of the student. We most cordially recommend it to their attention.—*Western Lancet.*

**ANATOMICAL ATLAS.**

By Professors H. H. SMITH and W. E. HORNER, of the University of Pennsylvania. 1 vol. 8vo., extra cloth, with nearly 650 illustrations. See SMITH, p. 26.

**ABEL (F. A.), F. C. S. AND C. L. BLOXAM.**

**HANDBOOK OF CHEMISTRY,** Theoretical, Practical, and Technical; with a Recommendatory Preface by Dr. HOFMANN. In one large octavo volume, extra cloth, of 862 pages, with illustrations. \$3 25.

**ASHWELL (SAMUEL), M. D.,**

Obstetric Physician and Lecturer to Guy's Hospital, London.

**A PRACTICAL TREATISE ON THE DISEASES PECULIAR TO WOMEN.**

Illustrated by Cases derived from Hospital and Private Practice. Third American, from the Third and revised London edition. In one octavo volume, extra cloth, of 528 pages. \$3 00.

The most useful practical work on the subject in the English language.—*Boston Med. and Surg. Journal.*

The most able, and certainly the most standard and practical, work on female diseases that we have yet seen.—*Medico-Chirurgical Review.*

**ARNOTT (NEILL), M. D.**

**ELEMENTS OF PHYSICS;** or Natural Philosophy, General and Medical.

Written for universal use, in plain or non-technical language. A new edition, by ISAAC HAYS, M. D. Complete in one octavo volume, leather, of 484 pages, with about two hundred illustrations. \$2 50.

**BIRD (GOLDING), A. M., M. D., &c.**

**URINARY DEPOSITS: THEIR DIAGNOSIS, PATHOLOGY, AND**

**THERAPEUTICAL INDICATIONS.** Edited by EDMUND LLOYD BIRKETT, M. D. A new American, from the last and enlarged London edition. With eighty illustrations on wood. In one handsome octavo volume, of about 400 pages, extra cloth. \$2 75. (*Just Ready.*)

It can scarcely be necessary for us to say anything of the merits of this well-known Treatise, which so admirably brings into practical application the results of those microscopical and chemical researches regarding the physiology and pathology of the urinary secretion, which have contributed so much to the increase of our diagnostic powers, and

to the extension and satisfactory employment of our therapeutic resources. In the preparation of this new edition of his work, it is obvious that Dr. Golding Bird has spared no pains to render it a faithful representation of the present state of scientific knowledge on the subject it embraces.—*British and Foreign Med.-Chir. Review.*

**BENNETT (J. HUGHES), M. D., F. R. S. E.,**

Professor of Clinical Medicine in the University of Edinburgh, &c.

**THE PATHOLOGY AND TREATMENT OF PULMONARY TUBERCULOSIS,** and on the Local Medication of Pharyngeal and Laryngeal Diseases frequently mistaken for or associated with, Phthisis. One vol. 8vo., extra cloth, with wood-cuts. pp. 130. \$1 25.

**BARLOW (GEORGE H.), M. D.**

Physician to Guy's Hospital, London, &c.

**A MANUAL OF THE PRACTICE OF MEDICINE.** With Additions by D. F. CONDIS, M. D., author of "A Practical Treatise on Diseases of Children," &c. In one handsome octavo volume, extra cloth, of over 600 pages. \$2 75.

We recommend Dr. Barlow's Manual in the warmest manner as a most valuable vade-mecum. We have had frequent occasion to consult it, and have

found it clear, concise, practical, and sound.—*Boston Med. and Surg. Journal.*

**BUDD (GEORGE), M. D., F. R. S.,**  
Professor of Medicine in King's College, London.

**ON DISEASES OF THE LIVER.** Third American, from the third and enlarged London edition. In one very handsome octavo volume, extra cloth, with four beautifully colored plates, and numerous wood-cuts. pp. 500. \$3 00.

Has fairly established for itself a place among the classical medical literature of England.—*British and Foreign Medical-Chir. Review.*

Dr. Budd's Treatise on Diseases of the Liver is now a standard work in Medical literature, and during the intervals which have elapsed between the successive editions, the author has incorporated into

the text the most striking novelties which have characterized the recent progress of hepatic physiology and pathology; so that although the size of the book is not perceptibly changed, the history of liver diseases is made more complete, and is kept upon a level with the progress of modern science. It is the best work on Diseases of the Liver in any language.—*London Med. Times and Gazette.*

**BUCKNILL (J. C.), M. D.,** AND **DANIEL H. TUKE, M. D.,**  
Medical Superintendent of the Devon Lunatic Asylum. Visiting Medical Officer to the York Retreat.

**A MANUAL OF PSYCHOLOGICAL MEDICINE;** containing the History, Nosology, Description, Statistics, Diagnosis, Pathology, and Treatment of INSANITY. With a Plate. In one handsome octavo volume, of 536 pages, extra cloth. \$3 00.

The increase of mental disease in its various forms, and the difficult questions to which it is constantly giving rise, render the subject one of daily enhanced interest, requiring on the part of the physician a constantly greater familiarity with this, the most perplexing branch of his profession. At the same time there has been for some years no work accessible in this country, presenting the results of recent investigations in the Diagnosis and Prognosis of Insanity, and the greatly improved methods of treatment which have done so much in alleviating the condition or restoring the health of the insane. To fill this vacancy the publishers present this volume, assured that the distinguished reputation and experience of the authors will entitle it at once to the confidence of both student and practitioner. Its scope may be gathered from the declaration of the authors that "their aim has been to supply a text book which may serve as a guide in the acquisition of such knowledge, sufficiently elementary to be adapted to the wants of the student, and sufficiently modern in its views and explicit in its teaching to suffice for the demands of the practitioner."

**BENNETT (HENRY), M. D.**  
**A PRACTICAL TREATISE ON INFLAMMATION OF THE UTERUS,** ITS CERVIX AND APPENDAGES, and on its connection with Uterine Disease. To which is added, a Review of the present state of Uterine Pathology. Fifth American, from the third English edition. In one octavo volume, of about 500 pages, extra cloth. \$2 00.

**BROWN (ISAAC BAKER),**  
Surgeon-Accoucheur to St. Mary's Hospital, &c.

**ON SOME DISEASES OF WOMEN ADMITTING OF SURGICAL TREATMENT.** With handsome illustrations. One vol. 8vo., extra cloth, pp. 276. \$1 60.

Mr. Brown has earned for himself a high reputation in the operative treatment of sundry diseases and injuries to which females are peculiarly subject. We can truly say of his work that it is an important addition to obstetrical literature. The operative suggestions and contrivances which Mr. Brown describes, exhibit much practical sagacity and skill,

and merit the careful attention of every surgeon-accoucheur.—*Association Journal.*

We have no hesitation in recommending this book to the careful attention of all surgeons who make female complaints a part of their study and practice.—*Dublin Quarterly Journal.*

**BOWMAN (JOHN E.), M. D.**  
**PRACTICAL HANDBOOK OF MEDICAL CHEMISTRY.** Edited by C. L. BLOXAM. Third American, from the fourth and revised English Edition. In one neat volume, royal 12mo., extra cloth, with numerous illustrations. pp. 351. \$1 75. (Now Ready, May, 1863.)

Of this well-known handbook we may say that it retains all its old simplicity and clearness of arrangement and description, whilst it has received from the able editor those finishing touches which the progress of chemistry has rendered necessary.—*London Med. Times and Gazette*, Nov. 29, 1862.

Nor is anything hurried over, anything shirked; open the book where you will, you find the same careful treatment of the subject manifested, and the best process for the attainment of the particular object in view lucidly detailed and explained. And

this new edition is not merely a reprint of the last. With a laudable desire to keep the book up to the scientific mark of the present age, every improvement in analytical method has been introduced. In conclusion, we would only say that, familiar from long acquaintance with each page of the former issues of this little book, we gladly place beside them another presenting so many acceptable improvements and additions.—*Dublin Medical Press*, Jan. 7, 1863.

BY THE SAME AUTHOR.  
**INTRODUCTION TO PRACTICAL CHEMISTRY, INCLUDING ANALYSIS.** Second American, from the second and revised London edition. With numerous illustrations. In one neat vol., royal 12mo., extra cloth. pp. 298. \$1 25.

**BEALE ON THE LAWS OF HEALTH IN RELATION TO MIND AND BODY.** A Series of Letters from an old Practitioner to a Patient. In one volume, royal 12mo., extra cloth. pp. 296. 80 cents.

**BUSHNAN'S PHYSIOLOGY OF ANIMAL AND VEGETABLE LIFE;** a Popular Treatise on the Functions and Phenomena of Organic Life. In one handsome royal 12mo. volume, extra cloth, with over 100 illustrations. pp. 234. 80 cents.

**BUCKLER ON THE ETIOLOGY, PATHOLOGY, AND TREATMENT OF FIBRO-BRONCHITIS AND RHEUMATIC PNEUMONIA.** In one 8vo. volume, extra cloth. pp. 150. \$1 25.

**BLOOD AND URINE (MANUALS ON).** BY JOHN WILLIAM GRIFFITH, G. OWEN REESE, AND ALFRED MARKWICK. One thick volume, royal 12mo., extra cloth, with plates. pp. 460. \$1 25.

**BRODIE'S CLINICAL LECTURES ON SUR-**



**THE**  
**AMERICAN JOURNAL**  
**OF THE MEDICAL SCIENCES**  
**FOR APRIL 1864.**

## CONTRIBUTORS TO THIS VOLUME.

- THOMAS ANTISELL, M. D., *Surgeon U. S. V., Professor of Physiology and Military Surgery in the Medical Department of Georgetown College, D. C.*
- JOHN ASHHURST, JR., M. D., *one of the Surgeons of the Episcopal Hospital.*
- WALTER F. ATLEE, M. D., *Physician to St. Vincent's Home.*
- ROBERT BRIDGES, M. D., *Professor of Chemistry in Philadelphia Coll. of Pharmacy.*
- JOSEPH CARSON, M. D., *Professor of Materia Medica in the University of Penna.*
- D. F. CONDIE, M. D., *of Philadelphia.*
- PLINY EABLE, M. D., *of Leicester, Mass.*
- JAMES SUMNER GREENE, M. D., *of Dorchester, Mass.*
- S. D. GROSS, M. D., *Professor of Surgery in the Jefferson Medical College.*
- HENRY HARTSHORNE, M. D., *of Philadelphia.*
- ISAAC HAYS, M. D., *of Philadelphia.*
- CHARLES H. HUGHES, M. D., *Surg. 1st Inf. M. S. M. Vols.*
- J. H. HUTCHINSON, M. D., *one of the Physicians to the Episcopal Hospital.*
- SAMUEL JACKSON, M. D., *Emeritus Professor of the Institutes of Medicine in the University of Pennsylvania.*
- WM. KELLER, M. D., *of Darmstadt.*
- N. W. KING, M. D., *of Philadelphia.*
- B. LAROCHE, M. D., *of Philadelphia.*
- M. CAREY LEA, Esq., *of Philadelphia.*
- JOSEPH LEIDY, M. D., *Professor of Anatomy in the University of Pennsylvania.*
- JAMES J. LEVICK, M. D., *one of the Physicians to the Pennsylvania Hospital.*
- JOHN A. LIDELL, M. D., *Surgeon U. S. A.*
- C. D. MEIGS, M. D., *Emeritus Professor of Midwifery in Jefferson Medical College, Philadelphia.*
- J. AITKEN MEIGS, M. D., *of Philadelphia.*
- J. FORSYTH MEIGS, M. D., *one of the Physicians to the Pennsylvania Hospital.*
- A. P. MERRILL, M. D., *of Memphis, Tenn.*
- I. MOSES, M. D., *Surgeon U. S. V.*
- ISAAC NORRIS, JR., M. D., *Acting Assistant Surgeon U. S. A.*
- JOHN H. PACKARD, M. D., *of Philadelphia.*
- I. G. PORTER, M. D., *Acting Assistant Surgeon U. S. Army.*
- H. RAPHAEL, M. D., *House Surgeon Bellevue Hospital.*
- J. C. REEVE, M. D., *of Dayton, Ohio.*
- ALFRED STILLÉ, M. D., *of Philadelphia.*
- HORATIO B. STORER, M. D., *of Boston, Surgeon to the Pleasant Street Hospital for Women.*
- WM. THOMSON, M. D., *Assistant Surgeon U. S. A.*
- A. PAUL TURNER, M. D., *one of the Physicians to the Howard Hospital and Infirmary for Incurables.*
- JAMES TYSON, M. D., *of Philadelphia.*
- PHILIP S. WALES, M. D., *Surgeon U. S. N.*
- J. MASON WARREN, M. D., *Surgeon at Massachusetts General Hospital.*
- H. C. WOOD, JR., M. D., *of Philadelphia.*
- JEFFRIES WYMAN, M. D., *Hersey Prof. of Anatomy in Harvard College.*

## TO READERS AND CORRESPONDENTS.

Several communications intended for this Number reached us too late for insertion, among which we may mention the paper on oblique fractures of the thigh, by Dr. David Prince; and the review of Dr. Woodward's work on the chief camp diseases of the United States armies. They shall receive early attention.

The reader will please notice that the name of Dr. Merrill is incorrectly printed on p. 414 as Morrill.

The following works have been received:—

**Medico-Chirurgical Transactions.** Published by the Royal Medical and Chirurgical Society of London. Second Series, Vol. XXVIII. London, 1863. (From the Society.)

**The Crimean War. The British Army and Miss Nightingale.** By CHARLES SHRIMPTON, M. P., late Surgeon Major French Army, &c. &c. Paris, 1864. (From Baillière Brothers.)

**Phthisis and the Stethoscope: on the Physical Signs of Consumption.** By RICHARD PAYNE COTTON, M. D., etc. Third edition. London: John Churchill & Sons, 1864. (From the Author.)

**Substernal Aneurism: Cases and Observations on its Diagnosis, and Relation to Disease of the Heart.** By A. HALLIDAY DOUGLAS, M. D., F. R. C. P. Ed. &c. Edinburgh, 1863. (From the Author.)

**Metanoia: a Plea for the Insane.** By HENRY M'CORMAC, M. D. &c. London, 1861. (From the Author.)

**A Contribution to the Pathology of Crura Cerebri.** By HERMANN WEBER, M. D., Physician to the German Hospital. London, 1863. (From the Author.)

**Notes on the Climate of the Swiss Alps and on some of their Health Resorts and Spas.** By HERMANN WEBER, M. D., etc. Dublin, 1864. (From the Author.)

**On the Phytopathology of the Skin and Nosophyteridmata: the so-called Parasitic Affections of the Skin.** By ERASMUS WILSON, F. R. S. London, 1864. (From the Author.)

**Dyschromatoderma; or, Discoloration of the Skin.** By ERASMUS WILSON, F. R. S., 1864. (From the Author.)

**The Dermal Pathology of Celsus.**

**A Treatise on Human Physiology: designed for the use of Students and Practitioners of Medicine.** By JOHN C. DALTON, Jr., M. D., Prof. Phys. and Microscopic Anatomy in the Coll. Phys. and Surg. New York, &c. &c. Third edition, revised and enlarged, with 273 illustrations. Philadelphia: Blanchard & Lea, 1864. (From the Publishers.)

**A Treatise on Pharmacy:** designed as a Text-Book for the Student and as a Guide for the Physician and Pharmaceutist, containing the official and many unofficial formulas, and numerous examples of extemporaneous prescriptions. By EDWARD PARRISH, Graduate in Pharmacy, Member of the Philada. Coll. Pharm., &c. &c. Third edition, thoroughly revised, and improved with important additions. With 238 illustrations. Philadelphia: Blanchard & Lea, 1864. (From the Publishers.)

**An Introduction to Practical Chemistry, including Analysis.** By JOHN E. BOWMAN, F. C. S., late Prof. of Pract. Chem. in King's Coll. London. Edited by CHARLES L. BLOXAM, Prof. Pract. Chem. in King's College, London. With numerous illustrations. Third American, from the fourth and revised London edition. Philadelphia: Blanchard & Lea, 1864.

**The Diseases of the Ear, their Diagnosis and Treatment. A Text-Book of Aural Surgery in the form of Academical Lectures.** By Dr. ANTON VON TRÖLTSCH, Aural Surgeon and Lecturer in the University, in Würzburg, Bavaria. Translated from the German and edited by D. B. ST. JOHN BOOSA, M.D., Assistant Surgeon to the New York Eye Infirmary. From the second and last German edition. New York: Wm Wood & Co., 1864.

**Proceedings of the Academy of Natural Sciences of Philadelphia.** October, November, and December, 1863. January and February, 1864.

**Proceedings of the American Pharmaceutical Association, at its Eleventh Annual Meeting, held in Baltimore, Md., Sept. 1863; also the Constitution and Roll of Members.** Philadelphia, 1863.

**The Transactions of the American Medical Association. Instituted 1847. Vol. XIV.** Philadelphia, 1864.

**Eleventh Annual Meeting for the years 1861, 1862, and 1863 of the Illinois State Medical Society, held in Jacksonville, May 5, 1863.** Chicago, 1863.

**Ninth Annual Report of the Board of Trustees and Officers of the Southern Ohio Lunatic Asylum, to the Governor of the State of Ohio, for the year 1863.** Columbus, 1864.

**Report of the Pennsylvania Hospital for the Insane, for the year 1863.** By THOS. S. KIRKBRIDE, M.D., Physician and Superintendent. Philadelphia, 1864.

**Eighth Annual Report of the Board of Managers of the Children's Hospital of Philadelphia.** Philadelphia, 1864.

**Fourth Annual Report of the Superintendent of Clifton Hall, a private hospital for Mental Diseases, for the year 1863.** Philadelphia, 1864. (From Dr. B. A. GIVEN.)

**Twenty-first Annual Report of the Managers of the State Lunatic Asylum, New York, for the year 1863.** Albany, 1864.

**Fourteenth Annual Report of the Board of Directors and Officers of Longview Asylum, to the Governor of the State of Ohio, for the year 1863.** Columbus, 1864.

**Lectures on Medical Education, or on the proper method of studying Medicine.** By SAMUEL CHEW, M.D., Prof. Pract. and Princ. of Med., &c., in Univ. of Maryland. Philadelphia: Lindsay & Blakiston, 1864.

**Lectures on Orthopædic Surgery.** By LOUIS BAUER, M. D., &c. Philada.: Lindsay & Blakiston, 1864. (From the Author.)

**Hospital Construction.** By FRANCIS H. BROWN, M. D. Boston, 1864. (From the Author.)

**The Nervous and Vascular Connection between the Mother and Fœtus in Utero.** By JOHN O'REILLY, M. D. New York, 1864.

**To Know: its Source, its Mode, and its Power.** An Introductory Address, delivered at the St. Louis Medical College, November 2, 1863. By FRANK W. WHITE, M. D. St. Louis, 1863.

**Discussions before the Philadelphia County Medical Society, at the Conversational Meetings, from October, 1861, to March, 1862.** Edited and published by WM. B. ATKINSON, M. D. Philadelphia, 1863. (From the Editor.)

The following Journals have been received in exchange:—

**Medical Times and Gazette.** December, 1863, January, February, 1864.

**British Medical Journal.** Nos. 144, 149, 150, 151, 152, 153, 154, 155, 156, 158, 159, 160, 161, 162, 163, 164, 165, 166.

**Edinburgh Medical Journal.** December, 1863, January, February, March, 1864.

**Glasgow Medical Journal.** January, 1864.

**The Half Yearly Abstract of the Medical Sciences.** Edited by W. H. RANKING, M. D., and C. B. RADCLIFFE, M. D. July—December, 1863.

**The Retrospect of Medicine.** Edited by W. BRAITHWAITE, M. D., and JAS. BRAITHWAITE, M. D. July—December, 1863.

**The Dublin Quarterly Journal of Medical Science.** February, 1864.

**Dublin Medical Press.** January, February, March, 1864.

**Revue de Thérapentique Médico-Chirurgicale.** Redigé par A. MARTIN-LAUZER, M. D. December, 1863, January, February, 1864.

**The Boston Medical and Surgical Journal.** Edited by SAMUEL L. ABBOT, M. D., and JAS. C. WHITE, M. D. January, February, March, 1864.

**American Medical Times.** January, February, March, 1864.

**The American Journal of Insanity.** Edited by the Medical Officers of the New York State Lunatic Asylum. January, 1864.

**The Cincinnati Lancet and Observer.** Edited by E. B. STEVENS, M. D., and J. A. MURPHY, M. D. January, February, March, 1864.

**Buffalo Medical and Surgical Journal.** Edited by J. F. MINER, M. D. Jan., February, 1864.

**Ohio Medical and Surgical Journal.** Edited by the Professors of Starling Medical College. January, 1864.

**The St. Louis Medical and Surgical Journal.** Edited by M. L. LINTON, M. D., and F. W. WHITE, M. D. January and February, 1864.

**The Chicago Medical Journal.** Edited by DANIEL BRAINARD, M. D., and J. A. ALLEN, M. D. December, 1863.

The Chicago Medical Journal. Edited by DeLASKIE MILLER, M. D., and EPHRAIM INGALS, M. D. February, March, 1864.

The Chicago Medical Examiner. Edited by N. S. DAVIS, M. D. December, 1863, January, 1864.

The Pacific Medical and Surgical Journal. Edited by V. J. FOURGEAUD, M. D. November, December, 1863.

San Francisco Medical Press. Edited by L. C. LANE, A. M., M. D. January, 1864.

The Sanitary Commission Bulletin. January, February, March, 1864.

The American Journal of Science and Arts. Edited by Profs. B. SILLIMAN, B. SILLIMAN, Jr., and J. D. DANA. January, March, 1864.

The American Journal of Pharmacy. Published by authority of the Philadelphia College of Pharmacy. Edited by Wm. PROCTER, Jr., Prof. Pharmacy. January, March, 1864.


American Druggists' Circular and Chemical Gazette. January, March, 1864.

---

Communications intended for publication, and Books for Review, should be sent, *free of expense*, directed to ISAAC HAYS, M. D., Editor of the American Journal of the Medical Sciences, care of Messrs. Blanchard & Lea, Philadelphia. Parcels directed as above, and (carriage paid) under cover, to Messrs. Trübner & Co., Booksellers, No. 60 Paternoster Row, London, E. C.; or M. Hector Bossange, Lib. quai Voltaire, No. 11, Paris, will reach us safely and without delay. We particularly request the attention of our foreign correspondents to the above, as we are often subjected to unnecessary expense for postage and carriage.

Private communications to the Editor may be addressed to his residence, 1525 Locust Street.

ALL REMITTANCES OF MONEY, and letters on the *business* of the Journal, should be addressed *exclusively* to the publishers, Messrs. Blanchard & Lea.

 The advertisement-sheet belongs to the business department of the Journal and all communications for it should be made to the publishers.

To secure insertion, all advertisements should be received by the 20th of the previous month.

# CONTENTS

OF THE

## AMERICAN JOURNAL

OF THE

### MEDICAL SCIENCES.

NO. XCIV. NEW SERIES.

APRIL, 1864.

#### ORIGINAL COMMUNICATIONS.

##### MEMOIRS AND CASES.

ART.	PAGE
I. Of Heart-clot as a Cause of Death in Diphtheria. By J. Forsyth Meigs, M. D., Fellow of the College of Physicians of Philadelphia, one of the Physicians to the Pennsylvania Hospital. . . . .	305
II. On Neuralgic Affections following Injuries of Nerves. By J. Mason Warren, M. D., Surgeon at the Massachusetts General Hospital. . . . .	316
III. Surgical Notes of Cases of Gunshot Injuries occurring during the Advance of the Army of the Cumberland in the Summer of 1863. By I. Moses, M. D., Surgeon U. S. V., Medical Director. . . . .	324
IV. A Description of some Instances of the Passage of Nerves across the Middle Line of the Body. By Jeffries Wyman, M. D., Hersey Prof. of Anatomy in Harvard College. . . . .	343
V. On the Disease produced by the Trichina Spiralis. By Wm. Keller, M. D., of Darmstadt, formerly of Philadelphia. . . . .	352
VI. On the Major Amputations for Injuries in both Civil and Military Practice. By John A. Lidell, M. D., Surg. U. S. V., in charge of Stanton Hospital, Washington, D. C. . . . .	361
VII. Report of Cases of Hospital Gangrene treated in Douglas Hospital, Washington, D. C. By William Thomson, M. D., Asst. Surg. U. S. A. . . . .	378
VIII. Observations upon One Hundred Cases of Intermittent Fever in which the Sulphate of Cinchonia was used as a Substitute for Quinia. By A. Paul Turner, M. D., one of the Physicians to the Howard Hospital and Infirmary for Incurables. . . . .	396
IX. Miasmatic Typhoid Fever. By James J. Levick, M. D., one of the Physicians of Pennsylvania Hospital. (Extract from a paper read before the Philadelphia County Medical Society, October 14, 1863.) . . . . .	404
X. Loss (Hysterical) of Speech and Hearing successfully treated by the Inhalation of Ether. Reported by James H. Hutchinson, M. D., one of the Physicians to the Episcopal Hospital. . . . .	412

ART.	PAGE
XI. Cerebro-Spinal Meningitis. By A. P. Merrill, M. D., of Memphis, Tenn. . . . .	413
XII. Case of Pott's Abscess of the Brain—Trephining—Necrosis and Removal of the Right Parietal and part of the Frontal Bones—Recovery. Reported by H. Raphael, M. D., House Surgeon, Bellevue Hospital. . . . .	414
XIII. Two successful Cases of Ovariectomy performed by A. Dunlap, M. D., of Springfield, Ohio. Reported by J. C. Reeve, M. D., Dayton, Ohio. . . . .	419

#### TRANSACTIONS OF SOCIETIES.

XIV. Summary of the Proceedings of the Pathological Society of Philadelphia. . . . .	423
Hernia Cerebralis. By Dr. J. H. Hutchinson. . . . .	423
Fungus Cerebri. By Dr. James H. Hutchinson. . . . .	424
Fibro-Plastic Tumour of the Dura Mater. By Dr. H. C. Wood, Jr. . . . .	425
Apoplexy following Railroad Injury of Head. Death, Autopsy, etc. By Dr. John Ashhurst, Jr. . . . .	427
Supra Pubic Fistula of Urinary Bladder. By Dr. H. C. Wood, Jr. . . . .	428
Syphilitic Caries of the Hyoid Bone. By Dr. N. W. King. . . . .	428
Phthisis. By Dr. H. C. Wood, Jr. . . . .	429
Comminuted Fracture of Patella. By Dr. James Tyson. . . . .	430
Mammary Tumour. By Dr. John Ashhurst, Jr. . . . .	430
Bed Sores following Typhoid Fever; Gangrene of Toes and Scrotum. By Dr. John Ashhurst, Jr. . . . .	431
Stricture of Rectum, Cirrhosis of Liver, etc. By Dr. John Ashhurst, Jr. . . . .	431
Osseous Degeneration of Valves of Heart. By Dr. J. H. Hutchinson. . . . .	432

#### REVIEWS.

XV. Medical and Surgical History of the Crimean Campaign. . . . .	
1. La Guerre de Crimée, les Campements, les Abris, les Ambulances, les Hôpitaux, &c. &c. Par L. Baudens, D. M. &c. &c. Paris, 1858. . . . .	
2. Relation Medico-Chirurgicale de la Campagne d'Orient, &c. Par G. Scrive, D. M. Paris, 1857. . . . .	
3. Maladies de l'Armée (Campagne de 1854-55-56.) Par Louis Cazalas, D. M. Paris, 1860. . . . .	
4. Société Impériale de Médecine de Constantinople—Discussion sur la Typhus observé dans les Armées pendant la Guerre d'Orient. Constantinople, 1856. . . . .	
5. Du Typhus de l'Armée d'Orient. Par Felix Jacquot, D. M. Paris, 1858. . . . .	
6. England and France before Sebastopol, looked at from a Medical Point of View. By Charles Bryce, M. D. London, 1857. . . . .	433
XVI. Histology of the Spinal Cord. . . . .	
1. Researches on the Development of the Spinal Cord in Man, Mammalia, and Birds. By J. Lockhart Clarke, F.R.S. From the Philosophical Transactions. Part II., 1862. 4to. pp. 28. With 4 plates. . . . .	
2. Notes of Researches on the Intimate Structure of the Brain. Third Series. By J. Lockhart Clarke, F.R.S. From the Proceedings of the Royal Society. Vol. XII., No. 57. 8vo. pp. 7. . . . .	
3. A case of rapid "Wasting Palsy" from Structural Disease of the Spinal Cord. By J. L. W. Thudichum, M. D. The Investigation of the Nervous Centres with Comments. By J. Lockhart Clarke, F.R.S. From Dr. Beale's Archives of Medicine. No. XIII., 1863. 8vo. pp. 22. With 5 plates. . . . .	463



ART.

PAGE

BIBLIOGRAPHICAL NOTICES.

XVII. Transactions of American State Medical Societies.

1. Transactions of the Eleventh Annual Meeting, for the years 1861, '62, and '63, of the Illinois State Medical Society, held in Jacksonville, May 5, 1863. 8vo. pp. 80. Chicago, 1863.
2. Transactions of the Eighteenth Annual Meeting of the Ohio State Medical Society, held at Ohio White Sulphur Springs, June 16, 17, 18, 1863. 8vo. pp. 94. Cincinnati, 1863. . . . . 467

XVIII. Reports of American Hospitals for the Insane.

1. Of the New York State Lunatic Asylum, for the years 1861 and 1862.
2. Of the Central Ohio Lunatic Asylum, for the fiscal year 1861-62.
3. Of the Southern Ohio Lunatic Asylum, for the fiscal year 1861-62.
4. Of the Vermont Asylum for the Insane, for the fiscal year 1862-63.
5. Of the Maine Insane Hospital, for the year 1863.
6. Of the State Hospital at Worcester, Mass., for the fiscal year 1861-62.
7. Of the State Hospital at Northampton, Mass., for the fiscal year 1861-62.
8. Of the Maine Hospital, for the year 1862. . . . . 473

XIX. Medico-Chirurgical Transactions. Published by the Medical and Chirurgical Society of London. (Second Series, Volume the twenty-eighth.) London, 1863. 8vo. pp. 225. . . . . 483

XX. Guy's Hospital Reports. Edited by Samuel Wilks, M.D., and Alfred Poland. Third Series, Vol. IX. London: John Churchill & Sons, 1863. 8vo. pp. 343. . . . . 489

XXI. The Surgical Diseases of Children: being the Lettsomian Lectures delivered before the Medical Society of London, March, 1863. By Thos. Bryant, F.R.C.S., Assistant Surgeon to Guy's Hospital, etc. etc. 12mo. pp. 148. London, 1863. . . . . 493

XXII. Lectures on Medical Education, or on the Proper Method of Studying Medicine. By Samuel Chew, M. D., Professor of the Practice and Principles of Medicine, etc., in the University of Maryland. 12mo. pp. 152. Philadelphia: Lindsay & Blakiston, 1864. . . . . 498

XXIII. The Nervous and Vascular Connection between the Mother and Fœtus in Utero. By John O'Reilly, M. D., F. R. C. S. I. Γνωθίς σεαυτόν. 8vo. pp. 76. New York, 1864. . . . . 500

XXIV. An Introduction to Practical Chemistry, including Analysis. By John E. Bowman, late Professor of Practical Chemistry in King's College, London. Edited by Charles L. Bloxam. Third American from the fourth English edition. 12mo. pp. 333. Blanchard & Lea, 1864. . . . . 502

XXV. On Human Entozoa: comprising the Description of the Different Species of Worms found in the Intestines and other Parts of the Human Body, and the Pathology and Treatment of the various Affections produced by their Presence. By Wm. Abbotts Smith, M. D. 8vo. pp. 251. London, 1863. . . . . 503

XXVI. British Pharmacopœia. published under the direction of the General Council of Medical Education and Registration of the United Kingdom pursuant to the Medical Act, 1858. London: Printed for the General Medical Council, 1864. 8vo. pp. 444. . . . . 503

BIBLIOGRAPHICAL RECORD.

- Treatise on Human Physiology. By Prof. John C. Dalton, Jr., M. D. . . . . 504
- Treatise on Pharmacy. By Edward Parrish. . . . . 504
- Physiological Memoirs. By Wm. A. Hammond, M. D. . . . . 504
- Outlines of the Chief Camp Diseases of the United States Armies as observed during the Present War. By Jos. Janvier Woodward, M. D., Assistant Surgeon U. S. A. . . . . 504

# QUARTERLY SUMMARY OF THE IMPROVEMENTS AND DISCOVERIES IN THE MEDICAL SCIENCES.

## FOREIGN INTELLIGENCE.

### ANATOMY AND PHYSIOLOGY.

	PAGE		PAGE
1. The Colourless Corpuscles of the Blood. By Dr. Lionel Beale. .	505	Axis, Atlas, and Occipital Bone. By Dr. John Struthers. .	506
2. Variety of the Muscles of the			

### MATERIA MEDICA AND PHARMACY.

3. Quinia as a Local Antiseptic. By Dr. R. Gieseler. .	507	7. Sarracenia Purpurea. By Dr. James Watson. .	510
4. Carbolic Acid as an Antiseptic and as a Local Application in Favus. By Dr. James Watson. .	508	8. Turpentine as a Styptic. By Dr. Wilks. .	510
5. Veratrum Viride. By Dr. Jas. Watson. .	509	9. Physiological Properties of Nitrite of Amyle. By Dr. B. W. Richardson. .	510
6. Tinctura Boleti Laricis Canadensis. By Dr. James Watson. .	510	10. Liquor Bismuthi. By Mr. Chas. R. C. Tichborne. .	511

### MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

11. Trichiniasis in Germany. .	512	of Rye in Albuminuria. By Dr. Socquet. .	522
12. Hæmaturia at the Cape of Good Hope due to the presence of Parasites. By Dr. John Harley. .	515	18. Treatment of Tendinous Rheumatism by the External Employment of Sulphur. By Dr. Renard. .	522
13. Extensive Development of Cysticerci in the Human Body. By M. Delore. .	517	19. Male Fern in Tapeworm. By Dr. Alexander Fleming. .	523
14. Epidemic Pleuro-Pneumonia in some Ships of the Mediterranean Fleet. By Dr. Bryson. .	518	20. Diet in Diabetes. By Dr. Edward Smith. .	525
15. Pain in the Stomach following the Ingestion of Food, successfully treated by Manganese. By Dr. Arthur Leared. .	519	21. Sudden Death from Obstruction of the Pulmonary Artery by Coagula. .	526
16. Tincture of Larch in Chronic Bronchial Affections. By Dr. Headlam Greenhow. .	521	22. Clinical Observations illustrating the effects of implication of the Pneumogastric Nerve in Aneurismal Tumours and Morbid Growths. By Dr. S. O. Hershon. .	526
17. The Simultaneous Employment of Perchloride of Iron and Ergot			

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

	PAGE		PAGE
23. Statistics of Amputation performed at St. Bartholomew's Hospital, from Jan. 1, 1853, to Oct. 1, 1863. By G. W. Calender, Esq. . . . .	528	Oblique Inguinal Hernia, occurring in a Young Woman. By Mr. Holmes Coote. . . . .	532
24. New Method of arresting Venous Hemorrhage after Amputation. By Mr. Geo. H. Porter. . . . .	529	31. Polypus in the Urethra in Man. By M. Beyran. . . . .	538
25. Varicose Veins. By Mr. Skey. . . . .	530	32. Structure of Indurated Chancre of the Prepuce. By M. Ordenez. . . . .	534
26. Erectile Tumours of the Glans Penis. By Dr. E. D. Mapother. . . . .	530	33. A Specimen of Fracture of the Odontoid Process of the Axis, with perfect Anchylosis of its Apex with the Occipital Bone, and Partial Luxation Forward of the Atlas. By Dr. Philip Bevan. . . . .	535
27. Osteo-Aneurism. By Dr. Mapother. . . . .	531	34. Foreign Bodies in the Ear. By Dr. Voltolini. . . . .	537
28. Lithotripsy without Injections. By Mr. Henry Thompson. . . . .	531		
29. Subpubic Puncture of the Bladder. By M. Voillemier. . . . .	532		
30. Left Ovary in the Sac of an			

OPHTHALMOLOGY.

35. Exophthalmos from Abscess in an Infant. By Prof. Arlt. . . . .	538	to Extraction of Cataract. By C. Bader. . . . .	539
36. Corneal Incisions made with Scissors, and their Application		37. Production of Lenticular Cataract by the use of Ergot of Rye. By Dr. Ignaz Meier. . . . .	540

MIDWIFERY.

38. Effects of Secale Cornutum, Administered 296 Times in 2000 Labours in Private Practice. By Dr. John W. Beck. . . . .	541	39. Treatment of the Vomiting of Pregnancy. By Prof. Gustav Braun. . . . .	543
--	-----	--	-----

HYGIENE.

40. Practicability of Arresting the Development of Epidemic Diseases by the Use of Anti-zymotic Agents. By Dr. Robinson. . . . .	545	42. Effects of Surat Cotton on the Health of Operatives in Mills. By Mr. Jesse Leach. . . . .	547
41. Iodine as a Deodorizer and Disinfectant. By Dr. B. W. Richardson. . . . .	546	43. Dangers of Slaughtering Diseased Cattle. By Prof. John Gamgee. . . . .	548

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

44. Etherization followed by Death. By M. Chassagny. . . . .	550
--	-----

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Ligature of the Femoral Artery. By Philip S. Wales, M.D. . . . .	551	monium in which Recovery followed the use of Opium. By A. Paul Turner, M.D. . . . .	552
Poisoning from the Datura Stra-			

## DOMESTIC SUMMARY.

	PAGE		PAGE
Lithotomy in Young Persons. By Dr. J. Mason Warren. . . . .	555	Divided Tendo-Achillis united by Silver Wire. By Dr. G. L. Simmons. . . . .	566
Ligature of the Common Carotid. By Prof. C. A. Pope. . . . .	556	Hospital Gangrene. By Dr. Frank H. Hamilton, Jr. . . . .	566
Treatment of Gunshot and Penetrating Wounds of Chest and Abdomen by Hermetically Sealing. By B. Howard, M.D. With Remarks by Prof. Longmore. . . . .	558	Traumatic Tetanus Successfully Treated with Chloroform and Subsequent Use of Belladonna. By Dr. L. C. Lane. . . . .	567
Ligature of the Left Subclavian inside the Scalenus Muscle, together with Common Carotid and Vertebral Arteries for Subclavian Aneurism. Hemorrhage from the distal end of the Subclavian. Death on 42d day. By Prof. Parker. . . . .	562	Circumscribed Tumour of the Umbilicus, closely simulating Umbilical Hernia, apparently undescribed by authorities upon the subject, and perhaps new to Abdominal Diagnosis. By Dr. H. R. Storer. . . . .	567
Ligature of the Subclavian Artery. By Dr. Armsby. . . . .	564	Needles in the Body. By Dr. F. D. Lente. . . . .	568
Ligature of the Common Iliac Artery. By Prof. Brainard. . . . .	565	American Medical Association. . . . .	568

THE  
AMERICAN JOURNAL  
OF THE MEDICAL SCIENCES  
FOR APRIL 1864.

---

ART. I.—*Of Heart-clot as a Cause of Death in Diphtheria.* By J. FORSYTH MEIGS, M.D., Fellow of the College of Physicians of Philadelphia, one of the Physicians to the Pennsylvania Hospital.

It is now somewhat less than four years since my attention was directed to the formation of coagula in the cavities of the heart, as a cause of death in certain cases of diphtheria.

The *first case* in which I observed this accident, or result, occurred in my own practice, in November, 1860, in a little girl, between six and seven years old, healthy in every respect, and born of vigorous parents. She was one of four children, all living at the time, and this case was the only one which then occurred in the family. The attack was severe, the deposit covering the whole of both tonsils, the uvula, and a considerable portion of the posterior surface of the pharynx. The external lymphatic ganglions were very considerably implicated, the swelling and soreness being marked, but there was no œdema under the chin. The constitutional symptoms were severe, but not malignant, the appetite, in particular, being almost null. The treatment consisted of stimulants and nutrients internally, and of cayenne pepper infusion applied to the fauces, and a stimulant embrocation used externally. At the end of the second week, the disease had seemingly yielded, and, on the nineteenth day, the local symptoms had disappeared. The strength was so much improved that the child sat up in bed from time to time stringing beads, and, in the morning of the day named, she was placed in a large arm-chair for an hour. This was the first occasion on which she had been allowed to leave the bed after the onset.

On the afternoon of that day (the nineteenth) the patient was not so well. She was paler than she had been for some days, seemed weaker and

more listless, and was more restless the night following than for some nights before. On the following day, there was again the same listless appearance about the child—a weariness, inattention, paleness of the face, a weakly pulse, poor appetite, but nothing more express. Towards evening, I was still more struck with this appearance of general and inexplicable debility. And yet the muscular power was not seemingly much reduced, for, though there was no desire to sit up, the child moved freely in bed, turned, rose up and lay down without any difficulty whatever. The pulse, though feeble, was regular, between 90 and 100; the respiration easy, and no abnormal sounds to be heard either in the lungs or heart.

On the following day (the twenty-first), in the morning, I was, for the first time, seriously alarmed. The general expression was most curiously that of intense weariness, of extreme lassitude, without the slightest appearance of pain or distress anywhere. The circulation, however, was evidently failing. The pulse was still not over 100, its rhythm was correct, but the force of the arterial pulsations had lessened and become somewhat irregular, so that they were smaller and feebler than natural, and some much feebler than others. The temperature of the body was normal. The colour of the surface was paler and whiter than usual, but there was no cyanotic tint of any part. The muscular movements, as performed in bed, were natural, quick, and sometimes petulant. The patient could lie in any position, used but one pillow, had no disposition to be raised up, and gave no sign whatever of even a tendency to dyspnoea. The mind and senses were as bright as ever, and the temper, beyond occasional slight fretfulness, was good. There was no appetite, but she took milk punch and stimulants when desired.

I now examined the lungs most carefully. There was nothing abnormal about them. Then turning to the heart, which I now felt must be the seat of trouble, I sought for endocarditis or pericarditis, but, in the absence of distinct murmur or friction, of increase in the area of dulness, or of altered position of the apex-beat, and, determined too by the entire absence of fever or pain, I was satisfied that there was no acute inflammatory condition to explain the state of the circulation. What remained? The formation by slow, but continuous, concretions, within the cavities of the organ, of a mechanical impediment in the systemic circulation, the external signs of which were to be seen in the gradual, but relentless, failure of the child's vitality, and especially in the weakening pulse, and the pale surface, whilst there was not a sign of cerebral, pulmonic or digestive disorder of a serious kind. Though I have said there was no murmur nor friction in the heart-sounds, there was a curious deviation from the natural condition, which it is difficult to describe. The sounds were confused, indistinct, and seemed as though reduplicated.

From this time the patient grew gradually worse. Stimulants with

bark were freely administered, but to no purpose. The pulse became smaller and more feeble, and irregular in force, though not in rhythm, until finally it was a mere thread. The general pallor became deeper, but without cyanotic hue. The face was somewhat flushed, but, in other respects, natural. There was no trace of dyspnoea, no pain, no clouding of the mind, no cough, no febrile heat, and, a few moments before the child died, she spoke out in clear, distinct tones, and turned without any difficulty in bed, suddenly, and with force. The death was sudden, as in other cardiac diseases, about eight o'clock in the evening of the twenty-first day.

I regret that no examination of the urine was made either before or after death. At that time my attention had not been drawn so decidedly as now to the condition of the renal secretion.

*Autopsy.*—The lungs and digestive organs presented nothing abnormal. The pericardium was quite natural. The heart appeared somewhat larger than usual, owing to the fact that the right auricle was distended with a dark, jelly-like mass of coagulated blood. A large coagulum was found also in the right ventricle; this was firm, yellowish-white in colour, adherent to the interior structures of the cavity, and, from its appearance, had evidently been some time in forming. A smaller coagulum was found in the left ventricle.

Of the *second case* I have but few notes, and therefore its history will be brief and imperfect. The subject was a girl between 7 and 8 years old, of good health. She was one of quite a large family, in which the disease was epidemic, the fatal case having been preceded by a very severe one, which, however, ended favourably, in a younger child, and being followed by another fatal case from croup, and by a less severe one in an older child.

This case began January 2d, 1862. It was severe from the onset, the throat affection being marked by extensive exudation, and by great tumefaction both interiorly and exteriorly. The case continued to present the usual symptoms up to the third week, when the local symptoms gave way, and I supposed that the attack was about to terminate favourably; but the child, instead of improving decisively, continued weak and languid. The circulation became feeble, as marked by general pallor of the skin, a small but not very frequent pulse, growing day by day more and more feeble, and a slowly increasing general debility, without any disturbance of the cerebral or general nervous system, or of the respiratory or digestive functions. In this case, also, by the method of exclusion, I formed the opinion that the cause of the gradually increasing vital exhaustion lay in the circulation, and that it must be the result of coagulation of blood in the cavities of the heart. The child died on the 25th day from the onset, without any respiratory struggle, without pain, without marked or painful phenomena of any kind, with simply the signs of a slow, but constantly progressive impediment to the circulation.

The treatment consisted, as in the other case, of rest in bed from the first; capsicum gargle internally, and a stimulating embrocation to the outside of the throat; small doses ( $\frac{1}{12}$  gr.) of Kermes mineral with Dover's powder on the first few days, and afterwards doses of iron, and milk punch or wine whey, with animal broth from the onset.

I was assisted at the *autopsy* by Dr. Packard, of this city. The lungs were healthy in all respects, as were also the digestive organs. The pericardium showed nothing abnormal. On opening the heart we found coagula in the cavities of both sides. These coagula were large, firm, of a dark tint generally, but dotted through with yellowish-white points. They were so firm as to force the conviction that they had been formed for a number of days. In the left ventricle, the coagulum, which filled the cavity of the organ very completely, presented some singular characters. Its lower extremity, that which corresponded to the apex of the ventricle, exhibited a broken, irregular, uneven, and frayed or granulated appearance, so as to suggest at once to our minds the idea of its having been whipped and crumbled away in minute granular portions under the crushing influence of the ventricular contractions. We could not but ask ourselves whether this was not a case of heart-clot in which there was an evident attempt of nature at cure; the mode of cure being a process of slow disintegration of the coagulum from causes acting within the clot, whilst the minute, granular, almost molecular portions thus loosened, were detached by the churning action of the ventricle, and conveyed away to distant portions of the system, there to be arrested, and then finally absorbed under the marvellous selective power of the absorbent system of the body.

This was the only case of the three that I relate, in which conditions of the clot were present, exhibiting the method by which nature strives to remove from the heart the dangerous mechanical impediment to the circulation.

The *third case* occurred in F. L., a girl, aged seven years, of healthy constitution, of unusual intelligence, and most active in all her habits. She was seized with what, for a few days, left me in doubt whether the attack was to be one of true diphtheria, or merely ordinary tonsillitis with a slight accidental exudation of false membrane in small dotted points. The general symptoms were very mild at first. In the second week the increase in the amount of the exudation, the considerable tumefaction and soreness of the cervical lymphatic ganglions, the loss of appetite, the continued febrile movement, and the decided, though moderate general weakness, showed very plainly that the case was one of diphtheria. The appetite now flagged very much, deglutition became painful, and the temper grew irritable and peevish, so that it was very difficult to nourish the patient sufficiently. At the end of the third week the throat was better; the exudation, which had never extended beyond the two tonsils and the velum, was diminishing in extent, and the external swelling had almost disappeared. The pulse was



between 90 and 100; the skin only at times rather warmer than usual, the muscular strength not greatly reduced, since the child could move freely in her bed, rise up and lie down, and sit up for some length of time to play with her toys. The appetite was poor, but by urgent persuasion the child was made to take a sufficient amount of food daily, in the form of milk punch, wine whey, animal broth, milk toast, tender meat, or some such articles of diet.

At the risk of being tedious, I must state that, though at this time the local symptoms were favourable, and the general condition, as shown by the pulse, respiration, digestion, and the state of the circulation, not positively discouraging, I felt uneasy and anxious about the prospects of my patient. The child made no decided progress towards full recovery. She was listless; the pulse was rather feeble; the surface pallid, and she had a peculiar weary expression of countenance, so that, warned by past experience, I began to fear the existence of, or a tendency to, the same accident I had already witnessed twice before, the formation of cardiac coagulum.

The urine, in its general appearances, had been natural, and was so even now, except that the whole amount was rather less than usual. Upon exposing it to heat, a very moderate amount of albumen in a granular form appeared, and thickened the fluid.

About this time (21st day), the mother left the child's room for a few hours to get some exercise in the open air, and on returning was shocked and distressed at the extremely pale, white, and weary look of the child. So strong was the impression that she declared nothing should induce her to leave the house again until the degree of danger was definitely determined. From this time the patient was not so well. The symptoms were peculiar, and unlike, in many respects, those of any morbid condition that I am in the habit of meeting with. The intelligence and all the senses were perfect in their integrity. The mind was as bright as in the best health, and, except that the temper was rather quick and irritable, and somewhat odd, the emotional nature was healthy. The muscular strength gave way very slowly. The patient could, at all times, move the head and arms freely, and up to three days before death could still rise up in bed. In the last few days she complained of weakness in, and difficulty of moving the legs—evidently a state of partial, and only partial paralysis. There was nothing like paralysis of the pharynx, and the voice, after being somewhat husky, had become clear again. The lymphatic swelling had mostly disappeared, and the fauces had almost regained their natural condition. The respiration was perfectly easy, not hurried, and there was no cough, except occasionally a loose laryngeal cough, which had replaced the previous stage of husky voice.

There was no serious dyspnoea, as the child could lie with the head and shoulders low, but the respiration was sometimes suspicious. This latter condition increased during the last two days, and especially during the last twenty hours, so that long-drawn and plaintive sighs were more and more

frequently heard, something like those which occur in the early stage of tubercular meningitis, and which told the practised ear that one of the great centres of vitality was seriously deranged. The circulation failed gradually. Each day there was a slight falling off in the power of this great system. The surface grew paler and somewhat ashy, but *not* cyanotic; it had a shrunken look. The face looked thin and anxious, or, rather, weary. The expression was peculiar. It was not what we expect to see in death from embarrassed circulation. There was no lividity, no frightened and staring eye, no pleading look, as in cardiac asthma or orthopnoea, but simply an air of intense weariness and fatigue, like that of one utterly fagged out with a long and hopeless contest with a deadly enemy. This, as well as I can describe it, was the character of the facies in this case, and in the other two which I have watched. In the absence of more specific and positive symptoms of this condition, I take the above mentioned peculiarities of the physiognomical expression to be of considerable importance.

The pulse was feeble and small during the last week of life, these conditions becoming more and more marked as time went on. It was not frequent, running usually from 80 to 100. It was irregular in force, towards the last intermittent, but not very irregular in rhythm. During the last day it was very small, weak, thready, and with considerable intermissions. There was nothing particularly to be noticed about the heart-sounds—indeed, the child was so fretful, when disturbed, that no proper examination was made in the latter part of the attack.

The urine continued moderate in quantity, rather dark in colour, without deposit, and with a notable, but not large precipitate of albumen on boiling.

During the last week, I had stated my fear that the cause of the constant declension in the patient's state was the gradual formation of a coagulum in the heart, this being slowly added to and increased in size by daily concretions forming upon its exterior surface. I was assisted during the last week by one of our best practitioners, and during the last two days by a third gentleman, to both of whom I expressed freely my opinion. They regarded the case as a singular one, but were not as well satisfied as myself in regard to the immediate cause of the constantly failing circulation.

As death approached, late in the evening of the 28th day, the general debility became more and more marked, so that the child would ask to be assisted in changing her position. The mind and senses continued quite clear; the respiration, saving its sighing character and occasional suspensions, was not visibly difficult nor laboured; the swallowing was not materially affected except from weakness; the pulse became a mere thread, and, for half an hour before death, could scarcely be felt; the extremities became cool and then cold; the child was drowsy and inattentive; there came a longer suspension of the breathing, a slight general convulsion, repeated two or three times within a space of fifteen minutes, and the young life had gone out, under some strange cause of embarrassed circulation, which, for a

whole week, had been as tenaciously and as gradually blocking the general circulation as the slow and yet continuous formation of false membrane in the larynx, in true croup, blocks and finally arrests the function of respiration.

The treatment of this case was as follows. The child was confined to a bed or sofa from the start, being allowed to sit up to use her toys, but not permitted to run about the room. For the first few days chlorate of potash, in doses of five grains every two hours, was administered. After this, one grain of sulphate of quinia in solution with five drops of the tincture of the chloride of iron, were given every three hours, until a few days before death, when the child would no longer take it. She was then ordered a teaspoonful of elixir of cinchona, every two or three hours. When the urine was found to be scanty and albuminous, a mixture of acetate of potash, spirits of juniper, and spirits of nitre was given alternately with the iron and quinia. This soon sickened the stomach, when the spirits of nitre was given alone in water.

Throughout the case the diet was nutritious, consisting of milk-food, with bread and animal broths, and tender meat, when the child would take it. Early in the case brandy was added to the milk, and, as it progressed, the quantity was increased, or it was changed to wine whey, as it was found possible to induce the patient to use them.

The local treatment consisted at first in the use of capsicum infusion as a wash internally, with an embrocation of tincture of cantharides and spirits of turpentine applied externally from time to time. Later in the disease alum in powder, mixed with sugar, was applied to the fauces.

*Autopsy.*—Lungs natural, except that they were paler and more crepitant than usual; they exhibited no signs of collapse, and only very slight appearances of congestion at the bases behind.

Pericardium natural; no effusion beyond a few drachms, and no trace of unusual vascularity, or of exudation. The whole size of the heart rather greater than usual, and the right auricle very much larger than the left (four or five times); blackish in colour, and much distended. On opening the cavities, no trace of inflammatory action. The right side of the heart presented a firm, dark-coloured coagulum, filling up the right auricle, and exhibiting prolongations into both cavæ. These prolongations were dark coloured in their general aspect, but here and there showed oblong points of a yellowish-white colour. They were firm enough to retain their shape on handling, and to bear some traction before they broke. The coagulum in the auricle was continued through the tricuspid orifice into the right ventricle, filling up to all appearances, almost completely, the orifice. In the ventricle it occupied a large part of the cavity of that chamber, was adherent closely to the curtains of the tricuspid valve, to the chordæ tendinæ, and to the columnæ carnæ. It was here much lighter in colour than in the auricle, being whitish or yellowish-white in its tint, and having

also a much firmer and more solid consistence. In addition to the large coagulum occupying the cavity of the ventricle, there were thin layers of fibrinoid looking concretions lying in amongst the columnæ carneæ, and resting directly upon the lining membrane of the ventricle. These were adherent with a very considerable force, but could be stripped off. They reminded me, except that they were dark in colour from the colouring matter of the blood, of the exudation I have so often peeled off from the laryngeal mucous membrane. A large, firm, and dark-coloured cylindrical coagulum extended into the pulmonary artery, and was traced beyond the point where the vessel bifurcates.

The left auricle was small, contracted, and contained only a very small, dark-coloured clot. The left ventricle was of natural size, and contained a rather firm, slightly adherent, dark-coloured coagulum, which sent a small prolongation into the aorta.

*Remarks.*—I am well aware that the three cases given above are but imperfectly reported. Any one, however, who has been immersed, body and soul, for a series of years in a large private practice in an American city, will know how to make allowance for such imperfection. Even with these imperfections, I believe them to be important and worthy of publication, since they call the attention of the profession to a mode, if not a direct cause, of death in diphtheria, which thus far has not been, I believe, recognized and described. Certainly the above three cases, occurring in my own practice within a period of four years, show that this accident or condition cannot be very rare. During this period, though I have attended a great many other cases of the disease, most of them of a mild type, I have had only three other fatal cases, and all of these died from the extension of the exudation into the larynx. In neither did I suppose that heart-clot had formed, and in neither was an autopsy made. I have seen, besides these three cases in my own practice, four fatal cases in consultation, all of which died early in the disease with acute malignant symptoms.

A peculiar interest attends such cases as those above described. The patient may or may not have presented alarming symptoms at first, but these have in a great measure disappeared, and the anxiety of the family and physician, as the local and general symptoms subside, may, and indeed must, have greatly lessened, when, suddenly, or very gradually, the case assumes a new aspect. Without any very severe or threatening symptoms, the experienced physician *feels* that some new danger approaches. The sudden arrest in the progress towards health; the continuance of certain general symptoms, such as weakness and altered temper, in spite of the improvement in the local signs; the pale face and weak pulse, and the air of general and inexplicable lassitude, beget a vague anxiety which hardly takes shape in time to save the physician the mortification and distress, and the family the anguish, of a sudden and unexpected catastrophe. I have seen, both in our own and in foreign journals, accounts of cases in

which sudden and unexpected death has taken place during an apparent convalescence, in which the death has been supposed to be the result of exhaustion or syncope, or in which no attempt has been made to explain the cause of the sudden fatality. From the character of the symptoms detailed in some of these instances, I have no doubt that they were examples of the kind I have described above.

As to the cause of the coagulations I have described I have only a few remarks to make. In 1849, my father, Dr. Charles D. Meigs, called attention to the accidental formation of heart-clots in parturient women, as a result of syncopal conditions, occurring in subjects who had already lost blood by hemorrhage during or after labour. He supposes that loss of blood increases the coagulability of what remains in the system, and that the syncopal state, occurring in women who have undergone hemorrhages, invites or conduces coagulation in the heart, through the slow and partially suspended movements of the heart during the existence of the fainting condition. He reports one case (*Obstetrics: the Science and the Art*, 4th ed., Philada., p. 339) in which a heart-clot seems to have formed on the day after the labour, and in which the patient lived to the eighteenth or nineteenth day. At the autopsy "a white, fibrinous coagulum was found in the right auricle, nearly filling it, and projecting through the tricuspid valve into the right ventricle; the tail of the clot was whipped into cords by the threshing action of the chordæ tendinæ of the ventricle. The pleura of the right cavity contained a large quantity of serum." If, however, the syncopal condition is, in truth, in this class of cases, and in others that I have met with, the real exciting cause of coagulation in the cardiac cavities, as I fully believe, this explanation will not apply to the production of coagula in diphtheria.

I shall merely suggest a mode of explanation which has occurred to me. This is that some peculiar change takes place in the constitution of the fluids or tissues, more or less akin to that which gives rise to the exudation of the diphtheritic deposit on the mucous surfaces, which does, in certain instances, by an analogous power or action, induce the formation of coagula upon the interior structures of the cardiac cavities. In the *London Lancet* (vol. ii., 1863, Nos. VI. and VII.) are two Croonian Lectures, on the Coagulation of the Blood, by Mr. Lister; in which the writer supposes he has shown that the tissues, when deprived of their vital properties, comport themselves like ordinary solids, and are capable, by a kind of catalytic action, of inducing coagulation of the blood which comes into contact with them. He says:—

"Thus, when an artery or vein is inflamed, coagulation occurs upon its interior in spite of the current of blood, precisely as would take place if it had been artificially deprived of its vital properties."

If this theory be borne out by further observation, it would be necessary to look with great care, hereafter, to ascertain whether the cardiac coagulum

of diphtheria has been preceded, or is accompanied, by the evidence of endocarditis. In the cases reported above, I did not find any of the usual appearances of endocarditis.

Can they be prevented? Entirely ignorant as we are in regard to the particular variety of the disease, in which we should anticipate their formation, we can have no better rule of treatment than to act in such a way as to get rid of the disease as rapidly and thoroughly as possible; or, in other words, to make assiduous use in all cases, mild and severe, from the very outset of the malady, of the remedies and various hygienic measures which observation and experience have shown to be most powerful in combating this dangerous blood disease.

Does the patient ever recover after a coagulum has formed in the heart? I am disposed myself to hope that, in some rare instances, and under very favourable circumstances, nature may be able to rescue the patient from even this abyss of danger. There is no doubt that subjects recover after the formation of thrombi in the vessels, and I believe it is generally acknowledged that some instances of recovery have taken place after the discharge of emboli through the great vessels of the heart, these emboli having been either carried through the heart from some point in the venous system where they had been formed, or having been formed originally in the cavities of the heart. M. Virchow supposes that the coagula or thrombi formed in the vessels undergo a softening process from the centre outwards, which reduces them to a puriform substance, "a puriform but not a purulent substance" (*Cellular Pathology*, Am. ed., p. 34). He does not describe any such softening process in coagula located in the heart, but infers that such disintegration may take place in large fragments of thrombi lodged in arteries. Referring to thrombi carried through the right side of the heart, he says, page 241:—

"I believe, namely, that when a considerable fragment of a thrombus becomes wedged at a certain point in an artery, it may in its turn crumble away through the onward pressure of the blood, and thus the minute particles to which this crumbling of the larger plug gives rise be conveyed into the small branches into which the vessel breaks up. Thus alone does it seem to me that the fact can be explained, that in the district supplied by an artery of considerable size a number of little deposits of the same sort are often found."

In one of the cases reported by me, the second, an effort was clearly being made by nature to break up and wash out from the left ventricle the clot which had there formed. Whether such an effort can ever be successful is the question now under consideration. It cannot be answered with certainty. To know that the effort was being made, is at least some encouragement. Any one who will read the description given above from M. Virchow, of the conditions observed by him in large fragments of thrombi carried into the larger branches of the pulmonary artery, cannot fail to see how closely they resemble those observed by myself in the case just referred to. I may mention that this case was observed before the publication of

M. Virchow's work in this country, and that I could not, therefore, have been led to look for the changes described by the expectation aroused by the perusal of M. Virchow's facts and opinions.

Whether the metastatic inflammations and suppurations which M. Virchow seems to suppose always ensue, as a consequence of the conveyance of the particles or fragments of the disintegrated thrombus or clot into the vessels beyond the point of formation of that thrombus or clot, must necessarily follow, is a question which I do not believe is yet positively determined. I think it may fairly be questioned whether the arrested fragments or molecules of the disintegrated coagulum, or thrombus, may not be absorbed, after undergoing some preparatory transformation like the fatty degeneration of inspissated pus, described by M. Virchow, without the invariable and necessary inflammatory changes supposed to constitute the basis of the metastatic conditions.

Several years ago I saw a case in consultation which, at the time, was extremely puzzling to me. It was that of a boy six years old, remarkably stout in build, hardy in constitution, and born of parents, on both sides, of the most vigorous and robust health. He had that characteristic which is so important in severe illness, toughness, tenacity of life, which makes the resurrections occasionally met with by all medical men in the course of a long experience. This boy had had a severe attack of scarlet fever, and had passed safely through the eruptive stage. During the desquamation he was attacked with albuminuria, and when I saw him, he was passing a very scanty amount of urine per day, which was highly charged with albumen, and which the microscope showed to contain blood-globules, very numerous and large fibrinous tube-casts, and much exfoliated epithelium. He had extensive anasarca, was much exhausted, and continued very ill for many weeks. He became emaciated, very pallid, and after the dropsy had disappeared, and the urine had greatly improved in quantity and quality, had the following curious train of symptoms. He was very feeble, so that he made no attempt to leave the bed, but he had no cerebral disorder, no material disturbance of the respiratory organs, and was always able to take his stimulants and nutrients, which were administered in large quantities, and which, with iron, constituted the essential treatment. His liver, however, became enormously enlarged, so that it extended down somewhat below the umbilicus, and then around to the crista of the right ilium. It was not painful to the touch, nor did he complain of any spontaneous pain in that region. At this time the heart-sounds had the same curious characters that were noted in the first case described above; they were indistinct, and gave at the same time the impression that they were reduplicated. The impulse was distinct, but feeble. The child continued for many weeks in this state, exhausted, emaciated, prostrate, and then began very slowly to mend, and finally, after having been in the very jaws of death, recovered entirely. Since meeting with the cases detailed in this paper, I

have often thought it not unlikely that the boy just alluded to may have had, and may have survived a heart-clot. His health was something quite unusual, both in fact, and by the law of descent, and I do not know that a recovery from a heart-clot, by the process above hinted at, would be more extraordinary than one from a wound, with loss of brain substance, caused by the passage of a tamping-iron through the anterior portion of the cerebrum, or that of the Count d'Aumale, described by Paré, who recovered after a spear had been driven from front to rear through the upper regions of the brain.

---

ART. II.—*On Neuralgic Affections following Injuries of Nerves.* By J. MASON WARREN, M. D., Surgeon at the Massachusetts General Hospital.

INJURIES of the nerves belong more especially to military surgery, and have therefore, until very lately, been but little studied among us. The information given in the common hand-books is also quite meagre, and eminent authorities differ widely upon important points both of prognosis and treatment. I have thought it worth the while, therefore, to collect the opinions of a few leading surgeons upon this subject, and to compare their teachings with the results of my own experience in a few cases which have recently been under my care.

The immediate effects of the division or injury of a large nerve, are the loss of sensation and of motion, and a diminished power of resisting changes of temperature which would ordinarily cause no inconvenience. Severe pain is also a very common symptom, but is not always observed until after the lapse of a certain time after the receipt of the injury. The loss of sensation and of motion may be either temporary or permanent, as might naturally be expected, but the connection between the precise nature of the injury and the subsequent phenomena has not often been marked out with so much exactness as could be desired. I shall confine myself chiefly to the question of the treatment of neuralgia following injuries of the nerves, commencing by a few quotations from good authorities.

"The best means of mitigating the pain," says Mr. Guthrie (*Commentaries on Surgery*), "independently of the application of warmth, is by the application of stimulants to the whole of the extremity affected, followed by narcotics." The particular applications suggested are tincture of iodine or of cantharides, oil of turpentine, croton oil, liquor ammoniæ, veratrina, &c., using them "of such strength as to cause some irritation on the skin, short, however, of producing any serious eruptions." He would follow these stimulant remedies by opium, belladonna, or hyoscyamus applied in



the form of an ointment ; or by the tinctures of the same narcotics or of aconite applied on linen ; he also suggests the employment of aconitia made into an ointment with lard in the proportion of one grain to a drachm.

Dr. Hennen (*Principles of Military Surgery*, Chapter XI., on Injuries of Nerves) states that "mechanical injuries of the nerves are entirely beyond the power of art to relieve effectually, but (that) they are objects of great curiosity, and illustrative of many important symptoms that occur in the course of practice." He mentions a secondary paralysis which "very frequently takes place without any immediate injury of the nerve, as in those cases when a ball has passed so close to a large one, or the plexus from which it proceeds, as to occasion an inflammation and consequent thickening of the neurilemma or investing membrane ; or when, in the more distant transit of the ball, the tube formed by its passage swells to an extent sufficient to press on the nerve or plexus." In a celebrated case reported by Dr. Denmark (*Medico-Chirurgical Transactions*, vol. iv.), in which the patient was tormented by a severe neuralgia, corresponding to the parts supplied by the radial nerve below the elbow, amputation was performed with complete relief of the pain, and on dissection the cause of the trouble was discovered in a bit of lead imbedded in the radial nerve. In a comment on this case Dr. Hennen approves the course adopted, "although the nature of the lesion was suspected previous to amputation, and indeed almost demonstrated by the symptoms and site of the wound." His objections to any attempt to dissect out the nerve and remove the foreign body, are "the extent to which the thickened and diseased state of the investing membrane of the nerves may reach ; the certainty of greatly lessening, and perhaps eventually destroying the motion and sensibility of the parts to which they are distributed, by cutting off the communication with the sensorium ; the contracted or distorted state in which the limb generally is ; and the possibility of exciting universal and highly dangerous commotion of the system." He further states that while "the total division of a partially wounded nerve is the only operation recognized by modern surgery, the experiment is both hazardous and uncertain ; he therefore confines himself to venesection, with emollients to the parts."

An interesting case of traumatic neuralgia, lasting several months, finally recovering without an operation, reported by Mr. Longmore in Mr. Holmes' *System of Surgery*, closely resembles several of my own cases reported in this paper, and will be cited in connection with them to complete the history of this interesting affection.

In the chapter in *Holmes' Surgery* on the Diseases of Nerves, Dr. Brown-Séquard has given an able *résumé* of various reflex affections following injuries of the nervous trunks and large branches. For the treatment of all these affections, whether taking the form of epilepsy, tetanus, neuralgia, paralysis, &c., he dwells chiefly upon local measures, and among these he

gives the preference to the artificial section of the injured or irritated nerve between the brain or spinal cord and the part of the nerve which is altered. "When there is any chance of a persistence of the irritating cause after the time necessary for the reunion of the parts of the divided nerve," he states that "an excision of an inch or two, which will retard reunion, must be made instead of a simple division." He states also that owing to changes which may take place in the nutrition of the nerve above the part originally affected, it may sometimes be proper to divide the nerve at a point considerably higher than would otherwise be necessary, in some cases operating "even as near the nervous centre as safely possible." Besides these cases requiring division of the nerve, there are others in which "all that is necessary is to gain a few days to allow a wound to heal up." In such a case he recommends "to lay bare the nerve above the wound, and to drop sulphuric ether upon it, which operation, especially if repeated, will render the nerve for many days quite unable to transmit any irritation from the original wound." "Amputation of a limb (he says) should never be resorted to with the view of curing reflex epilepsy, tetanus, &c., unless of course this operation happens to be necessary for another purpose." As the next best local means after neurotomy for combating these affections, he advises the employment of "subcutaneous injections of narcotics, just above the wound, or on the irritated nerve, together with applications of emollient and narcotic lotions or poultices on the wound itself." The dose recommended for subcutaneous injection is half a grain ( $\frac{1}{2}$ ) of morphia or one sixtieth ( $\frac{1}{60}$ ) of a grain of atropia; he also makes the important observation "that in many cases of reflex (nervous) affections, the most powerful narcotics, especially opium, are borne in large doses, without any poisonous effect."

The proposal of the plan of treating nervous affections of this kind by neurotomy involves the whole question of the repair of injured and divided nerves, a subject not very fully discussed in works on surgery, and therefore not very familiar to practical surgeons. I have thought it proper therefore to collect such facts as I could upon the subject both of simple division of nerves and also of division with the excision of a longer or shorter portion of the trunk.

As regards the question of reunion of the two ends of a divided nerve, there is no doubt that such a result often occurs. A sufficient proof of this fact is seen in the restoration of nervous action in the trifacial nerve even after the removal of a portion of one of its larger branches for facial neuralgia,<sup>1</sup> also in the occasional reproduction of the nerves in the foot of

<sup>1</sup> In two cases where I have removed a portion of the inferior maxillary nerve, amounting to about half an inch, for the relief of tic douloureux, regeneration of the nerve with full restoration of its functions afterwards took place. In the first case, operated on by Dr. J. C. Warren, the disease was relieved for six months, when the pain returned in the same spot beyond the excised portions of nerve. A year

the horse when divided or partially excised to conceal or relieve certain forms of lameness. The same fact is also proved physiologically by the experiments of Cruikshank and Haighton upon the vagus of dogs, and anatomically by Meyer, Swan, Tiedemann and others, who have actually traced the new nervous filaments in the cicatricial tissue, uniting the cut ends and filling the void caused by the excision of a portion of several lines (and in one case nearly an inch) in length. Clinical observations bearing upon the same point are recorded by various authors. Mr. Syme, in his *Treatise on the Excision of Diseased Joints*<sup>1</sup> (Case VIII., page 88), gives a remarkable case in which the ulnar nerve was wholly divided at the elbow in the operation of excision of that joint, and in which the functions of the nerve were perfectly restored in the course of a few weeks. A subsequent dissection of the arm less than a year after the operation, revealed the fact that perfect union of the cut ends of the nerve had taken place, and that the nervous filaments could be traced from both ends into the intermediate new tissue and apparently also from one end to the other. In a similar case reported by M. Roux, a portion of the ulnar nerve was actually cut away, but in the course of a year sensation had entirely returned, and when the patient was examined fourteen years after the operation the sensation was as perfect as in the other arm.

A very interesting case of union of the median nerve, after division at the wrist-joint by a circular saw, occurred in the practice of Mr. Stanley, and is admirably reported by Mr. Paget. (*Lectures on Surgical Pathology*. Lecture XII.) In this case sensation began to return within ten days or a fortnight, and was nearly complete in the course of a month. In another similar case, also quoted by Mr. Paget, in which the injury was inflicted with a chaff-cutting machine, the subsequent history was much the same as in the boy treated by Mr. Stanley. These cases are cited by Mr. Paget in illustration of a mode of repair which he calls primary union in contradistinction from secondary union, which takes place by the formation of new connecting substance, and generally requires twelve months for even a partial restoration of the nervous function.

In view of these facts it is important to inquire into the propriety of

after the first operation I trephined the bone and excised a second portion of the nerve with permanent relief. In the second case, which is published in the *Transactions of the Boston Society for Medical Improvement*, June, 1858, the lower jaw was trephined near the angle, and half an inch of the nerve removed for a tic douloureux of eight years' duration, confining the patient for most of that time to her couch. This patient was entirely relieved for about a year, at the end of which time sensibility had become almost wholly restored to the parts beyond. The violent and persistent neuralgia has not returned, although occasional paroxysms are felt at the same spot as before.

<sup>1</sup> For the reference to this and the following case I am indebted to Dr. R. M. Hodges, who has also called attention to them in his valuable and interesting paper on *Excision of Joints*.

dividing the nerve as a remedy for traumatic neuralgia. In answer to this question, we may state that if the nerve is simply divided, sensation will probably return before the tissues implicated in the original injury have had time to recover their normal condition, and that, therefore, the operation will afford only very transient relief and may have to be repeated several times. If, on the other hand, a portion of the nerve is excised, the restoration of the nervous function will be very much longer in taking place, but there will also be great danger that the repair will be incomplete or even that it may fail altogether, and thus entail permanent loss both of sensation and of motion. The deliberate removal of a long section of the nerve with a view to the permanent abolition of its functions can be but very rarely indicated, and then only as a "dernier resort," as the possible alternative of amputation.

The rational treatment of these neuralgic affections seems to me to be based on the fact that their natural tendency is to recovery, if only we can keep the patient comfortable and thus induce him to wait for this tardy relief. This can only be effected by division of the nerve or by the use, either local or general, of narcotics. The protracted use of opium internally in sufficient quantity to relieve the pain, will almost inevitably exert a most pernicious influence on the health, while mere local applications to the skin seem to have very little effect. The great benefit which has been derived from the use of hypodermic injections of morphia for ordinary neuralgia, naturally suggested the propriety of trying them in this affection, and the success which has attended the experiment has been most gratifying.

The following cases of severe traumatic neuralgia, which have lately occurred in my practice, serve to throw light upon certain points in the pathology and treatment of this painful affection. In all these cases the injury seems to have been to the tissues surrounding a nervous trunk rather than to the nerve itself, and the immediate cause of the painful affection which followed would seem to depend upon the effusion of inflammatory products within the dense fibrous neurilemma, thus entangling the nerve in a mass of cicatricial tissue, perhaps also compressing its fibres. The highly favourable result in Case I. may be readily explained by the well-known law of development of new reparative material, by which it becomes gradually assimilated to the proper tissue of the part in which it is deposited. The dissection made in the course of the operation showed that the nerve was then firmly glued to the surrounding tissues, and its release from these connections was followed by perfect relief of the pain, which, however, returned in a diminished degree as soon as the process of cicatrization had again commenced. The pain was then controlled during six months by the daily use of hypodermic injections of morphia, and at the end of this somewhat protracted treatment the neuralgic affection was found to have disappeared and the nerve had so far recovered its normal condition as to conduct ordinary sensations in a very satisfactory manner. The second

and third cases are equally interesting as showing the powerful effect of the narcotic injection, in the one case in relieving the pain, and in the other actually curing it. The case of Mr. Longmore is also added to show the important part which time plays in the cure of all such cases.

**CASE I. Severe Neuralgic Affection following a Gunshot Injury of the Median Nerve.**—In the second battle of Bull Run, Lieut. A., of a N. H. regiment, was struck by a ball on the outside of the middle of the arm. The ball passed obliquely through, traversing the biceps muscle and coming out on the inside. For two or three days he was exposed to the weather, lying under the piazza of a house, having but little food, and with his hand constantly wet with the rain which was falling. The hand was benumbed, but he suffered somewhat with a sensation of heat in it, which was partially relieved by keeping it exposed to the wet. There was no pain in the wound itself. Shortly after he was removed to Washington, where he first experienced very severe pain in the whole hand, but more particularly in the part of it supplied by the median nerve. I saw him about a fortnight after the receipt of the injury. He was then in constant and severe pain in the hand, so much so as to require to be kept more or less under the influence of morphia, which he was taking to the amount of a grain a day. On examining the point at which the wound was received, a puckered eschar was seen with an induration extending deeply into the belly of the biceps muscle to which the skin was adherent. The situation occupied by the vessels and nerves on the inside of the biceps was also enveloped in a mass of indurated tissue. The first idea suggested by this state of things was to cut down upon the nerve, to divide it. It seemed, however, possible, by the gradual change going on in the tissues, that a healthy action might ultimately be set up, and at the same time, the indurated tissue surrounding and compressing the nerve might be absorbed, finally relieving the nerve from pressure. The question was whether the sufferings of the patient could be sufficiently mitigated by artificial means to allow of the adoption of a temporizing course. He was advised to place the limb perfectly at rest, wear it inside his clothes, next the body, and to have a sleeve made of sheet India rubber to envelop the lower part of the arm, which covering was to be removed from time to time, the arm exposed to the air and washed with soap and water; he was directed to discontinue the use of the rubber sleeve if much irritation was set up in the skin, and to envelop the arm in flannel instead, which he had at all times found necessary owing to the great reduction of temperature. He went home to New Hampshire, and followed this plan for three or four weeks. At the end of that period he came to me again with the desire of having the nerve divided, as his sufferings had become so intolerable, in spite of the use of opiates, as entirely to deprive him of rest. Before resorting to an operation on the nerve I determined to try the effect of subcutaneous injections of morphia. Half a grain of sulphate of morphia, in solution, was injected deep under the skin of the forearm twice a day. He was at once placed in a state of comparative ease, and the evening injection gave him a good night's rest, such as he had not enjoyed for many weeks. This plan was followed up for a month with equally good effects; his digestion was not in the least affected by the use of the morphia, and he gained considerably in flesh. If, however, the dose was omitted, the pain became as bad as ever. It was therefore decided to perform an operation. An incision of three inches in length was made over the inner edge of the biceps, and the integument dissected

on both sides separating the cicatrices, caused by the entrance and exit of the ball from the subjacent tissues. The indurated mass which surrounded the vessels and nerves was now cut into, and the median nerve being discovered where it entered was gradually laid bare and dissected out so that it lay perfectly loose in the wound for an inch and a half or two inches of its length. It was thought best not to divide the nerve, but to await the result of the healing of the wound. The edges of the wound were loosely approximated, and water dressings applied. For some days the pain was entirely relieved, although from the effect of the habitual use of morphia, a small dose was required to promote sleep. As the wound began to heal, however, the pain returned, but was much less severe than before. Desiring now to return home, one of his family was instructed in the use of the subcutaneous injection of morphia. About two months afterwards he called on me, and again (March 20, 1863) four months after the operation. He was then in a state of perfect health, and had gained much flesh, but complained still of neuralgic pain in the hand, requiring the employment of the narcotic injection, whether from habit or not seemed to be a question. The arm, hand, and fingers had begun to acquire some motion. In regard to the local effect of the injections it may be said, that although they had been used twice a day for five months, he had never suffered from any irritation at the point of puncture except in one instance in the case of a freshly prepared solution of sulphate of morphia, the use of which was followed by the production of a large red blotch whenever it was injected. On substituting a solution of acetate of morphia no farther trouble of this nature was experienced.<sup>1</sup> The patient had, therefore, had nearly three hundred injections of morphia, more or less, and with the above exception no traces remained of its protracted use.

Oct. 26, 1863. I have just seen this patient, and find that he has recovered his health and enjoys complete immunity from pain. The hypodermic injections were continued until the month of July, or about nine months from the receipt of the injury. He then by a great effort suddenly discontinued them, and has not used them since. The neuralgic affection, except during extreme changes of the weather, has left him. The forearm has recovered its natural sensibility; he has the power of complete flexion of the elbow, and of partial rotation of the forearm, while the fingers, which were formerly held in a state of extension, can now be approximated to the thumb, so as to make the hand useful for most of the ordinary purposes of life. This motion is continually improving.

CASE II. *Gunshot Wound of the Thigh implicating the Sciatic Nerve.*—I have lately had under my care, in the hospital, a soldier, who, two months before, was shot in the thigh, and was taken prisoner. The ball traversed the thigh from side to side, and, probably, injured the sciatic nerve, in whose immediate neighbourhood it must have passed. He suffered no inconvenience in the site of the wound, but shortly afterwards a severe neuralgic pain commenced in the sole of the foot, accompanied by a sensation of heat and great tenderness of the part, and entirely incapacitating him for locomotion. Opiates in the usual form gave him

<sup>1</sup> This accident is probably to be explained by the common practice of adding free sulphuric acid to promote the solubility of certain specimens of sulphate of morphia. The acetate is very soluble in water.

but little relief, and the only alleviation of his sufferings while in prison at Richmond was obtained by keeping the leg constantly plunged in a pail of cold water. I immediately ordered the subcutaneous injection of a quarter of a grain of morphia daily into the leg, and gradually increased the dose to a grain a day. By this treatment the pain was completely held in check, rendering his days and nights comfortable. The full effect of each dose was obtained in from five to ten minutes after injecting it.

In the course of this case I experimented as to the effect of the injection, when made at a distant part of the body, as compared with its effect when applied in the immediate vicinity of the affected nerve. I found that when the injection was made in the opposite limb to that affected, the relief was as prompt and as complete as when made directly over the course of the nerve; and this occurred repeatedly, in every instance in which it was tried. This is a point of very considerable importance, inasmuch as it is often very inconvenient to make the injection in the exact situation of the affected nerve, as has been strongly insisted on by several writers upon this subject.

**CASE III. Injury of the Ulnar and Musculo-Spiral Nerves, from a Bullet.**—Capt. C——, who had already been twice wounded in the thigh and leg in the battles of Winchester and Fredericksburg, was hit at the battle of Gettysburg by a ball just over the median nerve. It passed in a spiral direction around the bone, and came out half way down the limb below on the other side. The hand and forearm were at once partially paralyzed, and in a day or two very severe neuralgic pains commenced, principally in that part of the hand supplied by the ulnar nerve. When I first saw him, about a week after the injury, the arm was much swollen, and the wounds, which had still on them the cold water dressing, were in an irritable state, and there was no appearance of suppuration. The water dressings were replaced by a large warm poultice, and on a free suppuration being established the extreme pain in the arm and hand was much relieved. The pain, however, still continued to recur at intervals, and the paroxysms coming on at night were very severe. Finally the hypodermic injection of morphia was tried, and a single dose of  $\frac{1}{2}$  grain afforded entire relief for the time being, and in fact destroyed the habit so that the paroxysms did not recur. The hand and arm, however, for a long time afterwards were very uncomfortable on account of the excessive heat of the parts, which was only relieved by the constant use of cold water, and it was not until after several months that the normal sensibility began to return, and this symptom to disappear. Seen again at the end of five months, he was free from neuralgic pain, had some use of his hand, and the elbow has become flexible after employing forcible extension to overcome stiffness produced partly by inaction and partly by the contraction of the injured muscles. The movement of rotation of the forearm had not yet been recovered by the patient, although they could be easily made by a second person, the nervous power being still deficient.

Case recorded by Mr. Longmore (Holmes' *System of Surgery*, vol. ii. p. 88).

"A soldier of the 37th Regt. was wounded at Azimghur on the 27th of March, 1858, by a musket ball through the right side of the neck. It entered just below the horizontal ramus of the jaw, and made its exit behind, over the scapula. About three pints of blood escaped, supposed to be from the external jugular vein. The wound healed favourably, but he lost the use of his right arm, at first completely, and afterwards partially, for three months. At the expiration

of that period the power of the arm was restored, but he was invalided home on account of severe pain in the back of the neck, 'resembling toothache,' which all treatment failed to relieve. The pain spontaneously and gradually ceased; there is still some loss of substance of the trapezius muscle of the right side of the neck, and of the right as compared with the other arm, with occasional numbness, when the man is in heavy marching order; but in all other respects he is well, and is at his regular duty."

Boston, January 15, 1864.

---

ART. III.—*Surgical Notes of Cases of Gunshot Injuries occurring during the Advance of the Army of the Cumberland in the Summer of 1863.*  
By I. MOSES, M. D., Surgeon U. S. V., Medical Director.

IN compliance with orders to report for duty to the commanding officer of the department of the Cumberland, I proceeded to Murfreesborough and was assigned to duty as medical director, April 29th, 1863. This village was formerly a pleasant place of residence, with about twenty-five hundred inhabitants, most of whom were engaged in trade. The stores are situated on the four sides of a square, with the court-house, a handsome brick structure, in the centre. The streets, not wide, lead thence in several directions, and have on either side wooden cottages and occasional brick mansions of more pretensions surrounded with gardens; the surrounding country is gently undulating with fine woods. The whole locality is limestone, cropping out near the surface into vast ledges with little or no superincumbent soil.

The water, whether of Stone River, its tributaries, or from springs, is decidedly limestone, and produces irritation of the bowels for several days in persons newly arriving; there are a few good springs of pure water, but the inhabitants prefer rain water collected in cisterns.

The majority of the inhabitants, especially males, had left the place, being actively engaged in the ranks of the Confederate army.

This being the headquarters and the front of our forces, was the centre of our line, extending from Franklin on the right to nearly McMinnville on the left. Our forces encamped around the town, the buildings were principally occupied as headquarters of generals, the staff departments, and as hospitals.

There were in all thirteen hospitals, as follows:—

Field hospital, under charge of Surgeon J. Y. Finley, 2d Kentucky Cavalry, composed of hospital tents erected two together, end to end, in streets, with wooden houses as kitchens and dining-rooms, capable of accommodating sixteen hundred sick or wounded. A garden of forty acres was being planted in the grounds on the south side of the banks of Stone River. This hospital was between the field works and the river,



under protection of the guns of the former. The site was within a bend of the river, which thus surrounded it on three sides; the drainage excellent, conveniences for bathing and supply of spring water limited, but enough, with economy, for ordinary purposes of drinking and cooking. The latrines were pits from eight to ten feet deep in the streets, covered with wooden houses, which were filled with earth and lime from time to time, and when nearly full covered up and new ones dug. With all care, however, there was more or less odour at all times, and especially in wet weather; various disinfectants were constantly used. On May 1st, there were one thousand two hundred and thirteen sick and eighty-five wounded in the hospital.

Hospital Division No. 1 consisted of a large hotel on the square, with low ceilings and much cut up into small rooms and narrow halls, illy adapted for its purposes, as was evidenced by the great mortality among the sick and wounded, and by several cases of hospital gangrene, erysipelas, and adynamic conditions among the inmates. On the 22d, I commenced to break up the hospital by reducing the numbers, sending the majority to the field hospital or to Nashville, and on the 26th, there were no sick or wounded in the building. There had been, May 1st, one hundred and one sick and thirty-eight wounded in this hospital.

Hosp. Div. No. 2 consisted of a private residence of two stories, neatly kept, and contained for the most part cases of rubeola; there were, May 1st, fifty-one cases. The disease generally was of a mild character. Five deaths occurred up to June 9th, when the cases became so rare that the hospital was broken up.

Hosp. Div. No. 3 was decidedly the best hospital, consisting of six large floors or wards thirty by one hundred and fifty feet, with large windows reaching from floor to ceiling, and central apertures in the floors. The police and discipline were admirable. In this there were eighty sick and seventy-four wounded.

Hosp. Div. No. 4. This building, containing six small wards, was originally a private hospital; the police and discipline were defective; it was reserved for cases of erysipelas exclusively. There were fifty-seven cases, seven of whom were wounded. Cases did not do well; frequent relapses occurred; the disease was severe and fatal. Ten deaths occurred up to June 9th, when the hospital was removed to the field and the patients put in tents.

Hosp. Div. No. 5 consisted of four wards tolerably well ventilated, but deficient in police and discipline. In this there were one hundred sick and thirty wounded. It was discontinued June 5th, a portion of the inmates being sent to Nashville and the remainder to the field hospital.

Hosp. Div. No. 6 consisted of four well-ventilated wards, tolerably clean, containing one hundred and fifteen sick and one wounded.

Hosp. Div. No. 7 consisted of four wards of moderate size, clean and

well ventilated, but at the corner of the public square, and being exposed to noise and dust, containing fifty sick and twenty-one wounded.

Hosp. Div. No. 8 was the smallest and least adapted for its purposes ; it contained thirty-seven sick ; clean and well ventilated.

The smallpox hospital was about two miles from the city near a fine spring, isolated and composed of tents. It generally contained about fifteen patients ; the type of disease was mild, and there were few deaths. It contains now (July 30) eighteen cases.

The contrabrand hospital is designed for the sick blacks, and consists of a portion of a large building for females and children, and tents for males. There were usually about fifty inmates, their diseases being chiefly fevers and diarrhœa, with various forms of scrofulous affections ; the mortality was large.

The Soule Seminary, a fine large building, in the centre of a large open space at the verge of the town, and particularly well adapted for a hospital, contained about sixty Confederate wounded. The cases were of the gravest character, being those who could not be removed. After the battle of Stone River, this building was crowded with wounded, who, on the retreat of Bragg, were left under the care of their own medical officers. The mortality had been frightful, and hospital gangrene, pyæmia and erysipelas very rife. Every facility was afforded for their care and comfort, but filth and dirt of every description were allowed to accumulate inside and outside, under the beds, in the fireplaces, halls and kitchens. The persons of the patients were rarely or never washed, and the surgical dressings were carelessly applied. I broke up this den a few days after my arrival, and removed the patients to the Baptist Seminary, a fine building beyond the town, standing alone, well ventilated, and admirably adapted for a hospital. It was occupied by about the same number of Confederate wounded. The same remarks may be applied to the police and condition of patients here as in the last-named hospital. Some improvement in cleanliness and comfort was made, and several cases placed in tents outside. Some of the cases presented remarkable examples of the powers of nature under most forbidding circumstances in the process of cure. There were several men who had received comminuted fractures of the thigh by minié balls, and where union had taken place, but with great shortening and deformity. One man had lost the larger portion of the shaft of the tibia and fibula, who is now recovering with regeneration of the bone, though there is not firm union.

The number of wounded confederates left at this post after the battle of Stone River was about fifteen hundred, of whom more than six hundred died. This hospital was broken up about June 1st, all but ten of the worst cases being sent north ; these ten, incapable of being removed, were sent to the field hospital, and have done well, except one, who having extensive hospital gangrene, sank, though not until the process was checked and the wound assumed a healthy appearance.

The prevailing diseases were fevers of various types, intermittent, remittent, typhoid, and that mixed form termed *typho-malarial*. Diarrhoea and dysentery were very prevalent and obstinate; jaundice was very common; a few cases of scorbutus, and of pneumonia; cases of syphilis were rare. A wise exclusion of intoxicating drinks made drunkenness almost unseen.

Abuses existed in the administration of several of these hospitals, and so little economy was practised that the hospital fund was in debt nearly two thousand dollars, while the sick and wounded had few or no extra articles of diet.

Maj. Perine, Medical Director of Department, had sent on for a supply of delicacies, which arrived about the middle of May, and by judicious returns for rations, the debt is paid, and there is now a large surplus of hospital fund in the hands of the commissary, while a bountiful supply of milk, eggs, butter, cheese, chickens, canned fruits and vegetables, fish, prunes and other dried fruits has been furnished, and our sick and wounded of this army can now be furnished as well and as liberally as those in the neighbourhood of Washington, and the price of the ration, about twenty cents, seems sufficiently large to yield a considerable saving.

Early in June, in anticipation of a forward movement by Gen. Rosecrans and an abandonment of the town, I was directed to break up all the hospitals in the town and remove the patients to Nashville or to the field hospital, which was accomplished on the 10th of the month.

The Soule Seminary, previously occupied as a confederate hospital, had been cleaned, whitewashed, and thoroughly ventilated. It was now fitted up anew ready to receive patients if required.

On the 21st of May, all the sick of regiments who were unfit for active service were directed to be sent to hospital, and some two thousand were admitted and distributed. No advance taking place, all remained quiet for a month, and on the 22d and 23d of May, the regiments were again purged of the invalids and malingerers, and the army moved forward in three columns.

Severe skirmishing occurred with the rear of the enemy, who were in retreat, and on the evening of the 24th the wounded began to come in, and continued to arrive day and night on the 25th, 26th and 27th. These cases were mostly of a severe character, and had been carried in ambulances over muddy, rough roads from fifteen to thirty miles; they had received their first dressings on the field.

Rain, which had set in on the day the army advanced, continued incessantly night and day, and the men were greatly exhausted previous to the fighting by marching and exposure to the wet weather.

On arrival they were very much exhausted; many had not slept for two nights, and had had little to eat. The majority of the wounds had been dressed with cloths dipped in cold water and an excess of roller bandage; quite a number had maggots in the wounds.

There were admitted into the field hospital during the month of June, one hundred and fifteen gunshot wounds, while there were forty-six remaining from the month of May, being the remnant of the wounded of Stone River, who were still too feeble to bear transportation, though their wounds were mostly healed. A new ward, consisting of double hospital tents, pitched on new ground, was established for the reception of the wounded, and every provision made for their comfort which could be afforded in a field hospital.

*Abstract of Gunshot Wounds received during the month of June, 1863.*

		Right side.	Left side.
GUNSHOT WOUNDS.	Flesh wounds.	Of head . . .	1 4
		neck . . .	3
		trunk . . .	8 10
		upper extremities	11 6
		lower " . . .	14 21
	Cavities.	lungs . . .	1
		abdominal cavity	2
	Fracture of bones.	facial bones . .	1
		clavicle . . .	1
		humerus . . .	4
		forearm . . .	3 3
		femur, upper 3d	1 3
		leg . . .	1
		ribs . . .	1
		other bones . .	3 5
	Involving joints.	shoulder-joint .	1
		wrist . . .	3
		hip . . .	1
		knee . . .	1
		ankle . . .	2
Total		53	62

*Abstract of Gunshot Wounds received during the month of July, 1863.*

		Right side.	Left side.
GUNSHOT WOUNDS.	Flesh wounds.	Of head . . .	1
		trunk . . .	1
		upper extremities	2
		lower extremities	2
	Cavities.	lungs . . .	1
	Fracture of bones.	cranium . . .	1
	Involving joints.	elbow . . .	1
Total		7	6

Making a total of one hundred and twenty-eight (128) cases, as the result of skirmishes attending the advance, and received into this hospital.

Hospital No. 1, or the Soule College, originally a flourishing female seminary and previously occupied as a Confederate hospital, had been thoroughly cleaned, whitewashed, and all offensive matters removed from the vicinity; partitions were removed and the rooms thrown into large wards. This was prepared for the reception of wounded after having been vacant six weeks, abundant time to remove all danger from its former impurities.

The wounded, on arrival at night, were placed into clean, dry beds, after being washed and dressed in clean clothing. Their hunger and thirst satisfied with warm food, and those requiring surgical dressings were properly attended to. The majority soon sank into deep sleep.

There were received into this hospital one hundred and thirty cases of gunshot wounds received in action and in localities shown by the following table:—

		Right side.	Left side.				
GUNSHOT WOUNDS.	Flesh wounds.	Of head . . .	2				
		neck . . .	2	1			
		trunk . . .	10	8			
		external genitals	3				
		upper extremities	5	8			
		lower extremities	15	12			
	Cavities.	{	lungs . . .	4	2		
			other wounds of abdominal cavity	3	2		
	Fracture of bones.	{	cranium . . .	1			
			facial bones . .	1	1		
			clavicle . . .	1			
			scapula . . .		1		
			humerus . . .	4	2		
			forearm . . .		3		
			lower third . .		2		
			middle third . .		2		
			upper third . .	3	2		
			leg . . .	3	3		
			Involving joints.	{	elbow . . .	2	1
					wrist . . .	1	
					hip . . .	1	2
	knee . . .	6			3		
	ankle . . .	1			3		
other joints . .	3	1					
Total		71	59				

The weather at this post has been generally pleasant; temperature moderate; the early half of June was warm and dry, while since the 24th, up to August, large quantities of rain had fallen, said to have been unusual in former seasons. The army commenced its advance on the 23d June, from this post, and from that day rains fell continuously, night and day, or heavy showers on June 24th, 25th, 26th, 27th, 28th, 29th, 30th, and July 3d, 4th, 5th, 7th, 9th, 10th, 11th, 12th, 13th, 19th, 20th,

21st, 23d, 24th, 25th, 26th, 27th, 28th, 29th, 30th, being twenty-six days out of thirty-eight. During the last week in June, our army was toiling through mud, constantly exposed night and day to the rain, sleeping on the ground and being deprived of means of cooking, the temperature warm and enervating. Large numbers fell out and straggled back to the post. On arrival at the Field Hospital, the same state of universal moisture existed; bedding and clothing being in a constantly wet condition, so as to produce mould and rot, while at Hospital No. 1, they were received into dry beds and kept dry. To this cause alone may be ascribed the great difference in the record of cases. While all the wounded in the Hospital No. 1 presented a cheerful aspect, and continued to progress from day to day most favourably, without the usual unfortunate complications, the contrary prevailed at the Field Hospital; the men soon began to have a pale, anxious look; gangrene, pyæmia, erysipelas and diarrhoea set in; there was a languor in reparative processes; bones did not unite; bad sores frequently appeared, and, at the end of one month, I observed that only one wound had a perfectly healthy granulating surface, and this very case subsequently died of pyæmia.

The only assignable reason for this sad condition of things was the continued rainy weather, producing a moist atmosphere, and damp tents and bedding.

The appearance of hospital gangrene, its almost simultaneous occurrence in several cases in different tents, and those tents at the end of a row, pitched upon ground lower than the other tents of the row, seem to strengthen our views of its development from moisture.

The first case of gangrene admitted into this camp was in a Confederate soldier, who was removed from a hospital in town; the disease had ceased, and the wound was in a healthy condition, but his general health was much enfeebled, and he subsequently died of exhaustion. There is reason to believe that the disease was communicated to the first case by direct application through a sponge which was carelessly used by a nurse.

As these cases contain facts of interest, I will relate briefly their history.

CASE I. Charles Lake, private Co. C, 4th Ohio Cav. Wounded June 7th, on scout. Admitted into General Field Hospital, June 8, 1863. The ball passed through the middle and posterior third of the thigh. The wound did very well under cold water dressing until June 19th, when it presented a sluggish appearance. Labarraque's solution was applied and warm water dressing used. On the following morning it presented every appearance of being gangrenous; nitric acid was then applied and for the three following mornings without arresting it. Bromine was then resorted to, along with stimulating poultices. The gangrenous action was entirely arrested after the second application. The skin and cellular tissue were the only ones involved. The patient never presented a bad symptom, and was transferred to Nashville.

This case was in the tent with the confederate soldier, and the same sponge was used to wash his wound, which was slight, passing through the

skin and cellular tissue, and about two inches in length. As soon as the disease appeared, the patient was put in a tent by himself, a special nurse detailed, and all care taken against the spread of the disease.

The gangrenous action increased, and the tissues were involved to the extent of the size of a large hand before it could be checked. The immediate check in the disease by bromine, after repeated trials of nitric acid, was well marked.

The general health and appearance of the man were completely undisturbed. His appetite good, sleep natural, and functions well performed throughout the continuance of the disease. He took no medicine, and his food was nutritious.

CASE II. John Wiss, Corporal Co. A, 32d Indiana Inf., wounded June 24, 1863, at Liberty Gap. Admitted into General Field Hospital June 26th. The ball passed through the upper third of the forearm on the ulnar side, fracturing the ulna for about two inches of its extent. The shattered fragments were removed and cold water applied until July 5th, when gangrenous action commenced. General health up to this time was very good.

On July 5th, the patient had slight fever, no appetite, and had not rested well during the night. Warm water dressing was substituted for the cold, and Labarraque's solution freely applied for three days without any beneficial effects. On the 9th of July bromine (pure) was applied, and on the 12th healthy granulations began to show themselves. On the 16th gangrenous action was entirely arrested. The tissues involved were the skin and cellular. During the time gangrenous action was going on, the patient had stimulants, tonics, and good diet.

He is still in the hospital, and is regaining his health rapidly.

CASE III. A. J. Ryan, private Co. A, 49th Ohio. Wounded June 24th, 1863, at Liberty Gap. Admitted into General Field Hospital June 27th. The ball passed through the fleshy part of the middle third of the leg. The patient's general health was good, and simple cold water dressing was applied to the wound until July 14th, when gangrenous action commenced. The wound was thoroughly cleaned and bromine (pure) applied, warm water being used as a dressing. Healthy granulations began to show themselves on the 17th, and on the 19th gangrenous action was entirely arrested.

The patient's health was very little impaired; tonics, stimulants, and good diet were freely given to him. He was able to bear transportation, and was removed to Nashville July 27th.

CASE IV. Wm. A. Statia, Sergeant Co. A, 7th Ill. Cav. Wounded June 24th, 1863, at Bradyville. Admitted into General Field Hospital June 27th. The ball passed through the upper third of the leg close to the inner side of the tibia. The wound did very well under cold water dressing, until July 8th, when the secretion was apparently arrested, and July 9th gangrenous action commenced. The case was treated similarly to the previous one, and gangrenous action was arrested July 12th. The periosteum of the tibia was somewhat destroyed, which no doubt will delay the healing of the wound. The patient was sent to Nashville July 27th.

CASE V. Wm. H. Beaver, Corporal Co. F, 7th Pa. Wounded June 27th, 1863, at Shelbyville. Admitted into General Field Hospital June 28th. The ball passed through the fleshy portion of the arm, close to the insertion

of the deltoid, without injuring the bone, and then passed through the muscles overlaying the ribs, close to the outer border of the scapula. The wound from the first did not do well; the secretions were unhealthy, the arm became very much inflamed and swollen. On July the 4th, the wound was laid open along its whole extent, washed with Labarraque's solution, and warm water dressing applied. This treatment was continued until July 6th, when gangrenous action commenced. The wound increased in size very rapidly. A solution of the ferri persulph. was applied, and a stimulating poultice of Peruvian bark and linseed was used as a dressing. This treatment was continued until July 12th, without beneficial effect, the wound still increasing. Bromine was then applied, which partially arrested the gangrenous action. During this time warm water dressing was used. On July 20th, on removing the slough, there was considerable hemorrhage; the ferri persulph. in solution was freely applied, and the stimulating poultices resorted to again. This treatment was continued till the gangrenous action was arrested, which took place July 26th. The granulations are now very healthy, and the patient is fast recovering. During the whole time he was well supported by stimulants, tonics, good diet, &c. &c.

Tissues involved—skin, cellular tissue, and muscle.

**CASE VI.** Cyrus Mann, private Co. A, 49th Ohio. Wounded June 26th, 1863, at Shelbyville. Admitted into General Field Hospital June 28th. Ball entered middle third of thigh on internal side, and came out on the posterior; general health was good, and the wound did well under cold water dressing until July 15th, when gangrenous action commenced. Bromine was immediately applied, and the action was arrested July 19th. The patient suffered very little from constitutional disturbance, and when transferred to Nashville, July 27th, was doing very well.

Skin and cellular tissue only involved.

**CASE VII.** Edward Cutshaw, private Co. A, 17th Ohio. Wounded June 26th at Hoover's Gap. The ball passed through the fleshy part just above the elbow and then entered the hip, knocking off a portion of trochanter of the femur. The patient had a slight attack of intermittent fever, from which he recovered about the 8th of July. The wound did well until July 17th, when the secretion was somewhat arrested and the odor not so healthy. It was washed with Labarraque's solution, and warm dressing substituted for the cold.

On July 18th the wound had increased in size, and gangrene developed. Bromine (pure) was applied, and the gangrenous action was arrested July 19th. The patient was supported by tonics, stimulants, and good diet. He is now in the hospital and doing very well.

**CASE VIII.** James Christie, private Co. C, 6th Indiana. Wounded June 26th, 1863, at Hoover's Gap. Admitted into the General Field Hospital, June 27th. The ball passed through the left nates. The wound did well until July 8th, when gangrenous action commenced. Bromine was applied three times without arresting it. A solution of ferri persulph. was then used, and the gangrenous action was arrested July 13th. He has since been transferred to Nashville.

The appearance of gangrene at this hospital would seem to confirm the views entertained by many, and with which I fully accord, that gangrene



is an essentially local disease. McLeod, in his *Surgery of the Crimean War*, says: "It never became general or severe. It did not appear to pass from bed to bed, but arose sporadically over the hospitals." And such was the case in our hospital. There was in the majority of cases little or no general disturbance of the health; often no pain or uneasiness of the part, and not unfrequently but one opening affected. There seemed to be a breaking down and undermining of tissue, without any swelling or thickening of parts by inflammatory deposits; the secretions became suspended or altered; and a dry brownish crust overspread the parts, involving skin, cellular tissue, and muscle which was easily separable from the sound tissue. The disease did not appear among broken-down subjects, but rather the contrary; nor did it seem, unless very extensive, to produce much prostration.

The application of the escharotics soon checked the progress of the disease. Nitric acid, bromine, and persulphate of iron were all used with advantage, but bromine seemed to meet our wants in the largest number of cases. Its application, though very painful, should be thorough. Great care should be taken in its application, which should be to the sound tissue, after separating the slough carefully. One application will often be sufficient, but a second and third is not unfrequently required.

The persulphate of iron is a good and efficient remedy, and much less painful in its application. I have had good results from nitric acid elsewhere, but I should give the preference to bromine, although it has failed in some cases.

Generous diet, with stimulants according to degree of severity of disease, and opiates are necessary adjuncts in the treatment of this disease.

Though many of the cases were severe in character, we are to congratulate ourselves with unheard of success. There was not one fatal case.

Of the *wounds of head and face* there is nothing of special interest to be said. They are often of the most frightful character, horribly disfiguring the face, and yet doing well. Balls take all directions with seeming impunity, and lodge in the most out of the way places, and lie harmless for a long time. The two classes of cases most alarming are where they fracture the arch of the skull, or take a course near an arterial branch.

In the first they are almost universally fatal, and as far as my experience goes in this and former campaigns, it makes little difference whether you trepan, remove depressed bone, or let them alone. Even the seemingly trivial cases, after a longer or shorter interval, die, with few exceptions.

Mr. Longmore, Prof. of Military Surgery at the Army Medical School, Netley, says: "Of seventy-six cases treated, where depression only, without penetration or perforation existed, fifty-five proved fatal, twelve were invalided, and nine only were returned to duty. Of eighty-six other cases where perforation or penetration of the cranium existed, *all died*."

I can call to mind a soldier of the 6th U. S. Infantry, who was wounded, and a large piece of the parietal bone removed, who recovered. Also an

officer (Col. S.) who was wounded at the battle of Stone River, and who recovered after a gunshot wound of the head, with a loss by necrosis of a small portion of the right parietal bone. The wound was not entirely closed six months after, and he was unable to expose himself in the sun or to fatiguing duty.

Of the cases received, only the following one seemed to call for the use of the trephine.

Athāl Achme, Co. I, 33d Indiana, was struck, June 26th, with a ball near the inferior and external angle of the left parietal bone, depressing about an inch square of the external plate, and a much larger extent of the internal.

The substance of the brain and meninges was torn. He had a wandering, unsteady gait, but was conscious though dull. The crown of the trephine was applied and all the loose fragments removed, several of which penetrated the substance of the brain.

He recovered well from the operation; slept, ate, and expressed himself as feeling comfortable; and all his symptoms promised well until about two hours before his death, July 3d, when he became comatose.

I regret to have to confess that all my operations for trephining have been unsuccessful thus far in this war; but Stromeyer tells us that during the three years he attended the hospitals of Vienna, London, and Paris, he had not met with a single successful case; and even in civil life, where the injuries are chiefly produced by blows or falls, and the patients have every attention of the highest surgical art, only one-fourth of the cases recover.

During the Crimean campaign, the trephine was applied successfully only four times, and not for gunshot wounds, by the English surgeons; and Dr. Scrive says that trephining was for the most part fatal in its results in the French Army.

Dr. Stromeyer declares that he has abandoned the practice.

*Secondary Hemorrhage: Ligation of Common Carotid Artery.*—Wm. Bryant, private Co. B, 17th Indiana Volunteers, June 25th, received a gunshot wound; the ball entered the left malleolar bone, and, passing through, fractured the palatine, superior and inferior maxillæ on the right side. He did well until July 5th, when secondary hemorrhage set in, which was checked by plugging and application of the persulphate of iron.

July 8. Profuse hemorrhage again occurred, and the common carotid artery was tied by Asst. Sur. McCullough, 77th Penn. Vols. No recurrence took place, and he progressed well, starting on furlough August 18th. Several loose pieces of bone were removed from time to time, and a slight attack of erysipelas occurred about July 27th.

*Shell Wound of Face and Arm.*—Sergt. A. Miller, Co. A, 2d Ohio Volunteers, was struck with a fragment of shell, tearing away a large portion of the soft tissues of the face, especially on the right side, destroying the eye, and fracturing the zygoma and inferior maxilla. He presented a horrid appearance. The soft parts of the right arm from the shoulder to

the elbow were terribly lacerated. Notwithstanding this amount of injury, he steadily improved and finally recovered. After healing it was found necessary to repair the loss of the right angle of the mouth by a plastic operation, so as to enable him to drink without the fluid escaping.

*There was one gunshot wound of the shoulder-joint.*

Sergt. James Fisher, Co. K, 17th Indiana Volunteers. A minié ball struck the shoulder on the outer and anterior side, passed through the head of the bone and behind the scapula, at Liberty Gap, June 25th. He was brought to Hospital No. 1, next day, in a very prostrate condition; but rallied during the next night, after being put in a warm comfortable bed, with good diet and anodyne. I found, on examination under chloroform, a comminuted condition of the head and neck of the bone, and resected. (See specimens in Museum.) There was little blood lost, and he seemed to do well, but sank after twenty-four hours, and died.

There were ten *comminuted fractures in shaft of the humerus*, of which two died; on both of whom resection had been performed; in one case by the surgeon of his regiment (2d Indiana Cavalry), and in the other by myself. Both cases promised admirably for a month, but finally feeling the influence of the poisonous atmosphere of the surgical ward of the Field Hospital, died of exhaustion. In another case of resection, George Dougherty, Co. C, 77th Pennsylvania Volunteers, I took away full three inches of the middle third of the left humerus. He entirely recovered, but his convalescence was retarded by a hemorrhage, which occurred a week after the operation, and reduced his general health very much.

The other cases (seven) recovered without any operative interference, as is usual in this character of injury. No cases give more satisfaction than those in which the surgeon can save an arm; and unless the parts are very much torn by shell or round shot, or the vessels and nerves injured, he may count upon a successful result.

The introduction of the plan for saving arms in cases of wounds of the elbow joint by exsection of a part or the whole, according to the extent of the injury, has in many cases saved arms which but a few years since I have seen fall before the surgeon's catlin; and I regret to say, I believe at this day I can see many a poor fellow with his stump whose arm could have been saved.

It has been urged that we are called upon to amputate in many such cases on the field, and the chances are better, especially where the wounded are obliged to be removed rapidly to the rear; but however good such reasons may be in gunshot fractures of the lower extremities, it cannot be applied to the upper.

Of four cases recorded, three were reported as recovering, without any other operation than removal of loose spiculæ.

In the other, private Daniel Long, Co. D, 77th Indiana Volunteers, I removed about two and a half inches of the ulna, including the olecranon.

The patient promised admirably for a month, but finally succumbed to the pyæmic poison at the Field Hospital.

All the wounds of the forearm and hand recovered without amputation, although many were of a severe character, and more than one through the wrist joint involving the carpal bones. In one case, three inches of the radius was removed, and the wound became gangrenous; but the patient finally recovered, with some use of his fingers; but so great was the destruction of muscular substance by gangrene, that his arm will not be of much value.

*Wounds involving the lungs* present to our attention cases of the most grave character, and, when we consider the importance of this vital organ, it is remarkable how many recover, with due care.

Eight cases are reported as received at this post, of which two died. All these cases were transported in ambulances, and presented alarming symptoms on admission; blood still expectorated, breathing short and hurried, anxious expression of countenance, and acute pneumonia setting in. It would be useless to give the individual history of each case and its course towards recovery. The principal means were digitalis and veratrum viride, extreme quiet, light diet, and avoidance of all excitement to mind or body.

In the case of adjutant Thomas, of the Confederate service, the ball passed in one inch below the middle of the clavicle and passed out posteriorly, fracturing the superior angle of the scapula; a loud bellows murmur was developed over the region of the heart and aortic arch, a few days after admission into hospital, which was explained by the fact that the ball had passed near this vessel or the left subclavian (he being wounded through apex of left lung). His condition was critical for a month, but he finally recovered, and was paroled to visit his friends in Nashville.

Private Charles H. Palmer, C. S. A., was admitted June 27th; a ball had entered the left side of the chest between the fourth and fifth ribs, one and a half inches to the left of the nipple, and made its exit two inches below the inferior angle of the scapula. He had bloody expectoration and pleuro-pneumonia. On July 27th a large accumulation of pus in the left pleural cavity was evacuated through an opening into the bronchi, and he suddenly threw up a quart or more of pus, which continued in small quantities until he was well enough to send to Nashville about Sept. 1st.

Private Barton Cook, Co. F, 89th Ills. Vols., was brought in, having received a gunshot wound of the lungs, the ball had entered on the left side, outside of the nipple, and, passing through, made its exit on the back on the right side of the tenth dorsal vertebra, and must have passed between the heart and thoracic aorta. On admission he had constant harassing cough and bloody expectoration, great dyspnoea, frequent full pulse, and flushed face. He passed through a dangerous succession of symptoms, with free suppuration, but in September he is recorded as "improving, discharge almost ceased, and walking about the room," and on the 19th as having walked down stairs and ready to go on furlough.

Other cases presented no important points of interest.

Four cases of *wounds of the hip-joint* are reported, of which two were

transferred to General Hospital at Nashville. Some doubt exists in my mind as to the accuracy of diagnosis in these cases, and I am inclined to regard them rather as fractures near the head of the bone. I have no history of the cases, and cannot recollect the particulars, though I should no doubt have done so had cases of so grave a nature been received, as it was my custom to visit every surgical case of interest in all the hospitals two or three times each week.

The third and fatal case was that of Captain Martin, 79th Ill. Vols. A minié ball entered the left hip opposite the great trochanter, passed inwardly through the head of the femur, and was reported to be there retained. He was brought to the hospital after a journey of thirty miles in an ambulance, and on arrival was very much exhausted. On the second day after, having rallied considerably in strength and spirits, he desired that an operation should be performed if considered necessary. He was rendered insensible by ether and an exploration made, by which it was discovered that the ball had passed through the neck of the bone, and the finger could follow its track, but no ball was felt—although the fissure could be detected which rendered the fracture complete, yet there was very little comminution and no displacement. It was deemed most proper to leave things as they were.

The patient recovered well from the anæsthetic influence, and presented no unfavorable symptoms until the third day after the operation, when he rapidly passed away.

It was discovered, after the operation, that the ball had passed through the thigh and made its exit near the anus in the cleft of the nates. (See specimen in Army Museum.)

The fourth case, and fatal, was Private W. C. Lesneur, of Confederate Army, who was admitted June 27th with gunshot wound on right side; the ball had entered opposite the great trochanter of the femur, passing inwards and backwards through the trochanter major and lodging. The finger could be passed into the inner side of the bone, but could not follow the track farther. As this patient was much exhausted by a long and fatiguing journey, no operation was deemed advisable.

He lingered along for a few weeks, although supplied with food and stimulants, and sunk rapidly, being at no time in a condition to warrant surgical interference.

On examination, eight hours after death, the ball was found to have entered the trochanter major, passing through it and the capsular ligament of the joint, carrying away a portion of the head of the femur, the round ligament, and posterior portions of the acetabulum, and to have lodged beneath the psoas magnus and iliacus internus muscle near the spine, where a large abscess was found filled with dark unhealthy pus. The ligamentous and cancellous structures in the vicinity of the joint were almost entirely absorbed, and the soft parts infiltrated with sero-purulent matter.

In such a case no operation, even if attempted, would have offered any chance of saving life, and would have without doubt hastened the fatal result.

The experience of the English and French surgeons in the Crimean war has led them to declare that the attempt to save gunshot wounds of the

thigh was so complete a failure, that MacLeod in his Notes winds up his history of this class of injuries by the following precept:—

“That under circumstances of war similar to those which occurred in the East, we ought to try to save compound comminuted fractures of the thigh, when situated in the upper third; but that immediate amputation should be had recourse to in the case of a like accident occurring in the middle or lower third.”

Now these circumstances were, as mentioned by him:—

“During the greater part of the siege the means of treating these accidents, whether as regards food, bedding, clothes, or shelter, did not exist in camp; and to transfer them to the rear only made the fatal result the more certain, from the pyemic poisoning which was sure to be set up by the transport. Thus, then, it came to be, that up to the period when things were improved in the camp hospitals and in the transport service, recovery from a compound fracture of the thigh was impossible, or nearly so, and that the best hope lay in an early amputation.”

Not only the above causes operated, but the “scurvy-poison held command in their systems; most of the patients had either suffered from dysentery or were on the verge of falling into that disease; in fact their condition of health did not bear sickness or gunshot injury.” Now just the opposite state of things existed in our army. The men had been at rest in camps about Murfreesborough for five months, warmly clothed, abundantly fed, with a wholesome allowance of potatoes and onions, and they were the pick of the entire force, at least seven thousand of the feeble, sick, and worthless being left behind in hospital or invalid camp, or having straggled to the rear after two or three days’ march. Now any rules or principles derived from the experience of the Crimean war were not applicable in our treatment of injuries.

Our ambulances were easy and abundant, and the hospitals amply supplied with everything essential.

Under such circumstances we were prepared to exert ourselves for the preservation of limbs, and our success has been such as to warrant our efforts.

Thirteen cases of fractured gunshot wounds of the femur were received, of which five died. Of the five who died, three were amputated at the upper and middle third; one had resection performed of the middle third, and one died without surgical interference.

Two cases of resection were recovering.

Three cases where spiculæ were removed were recovering.

One case where there was no interference was recovering.

One case was discharged, and one sent on furlough.

In the six cases marked as recovering, two had been wounded at Stone River, December 31st, 1862, and were able to be up but not put any weight on the limb; the other four were wounded in the latter part of June, and on September 15th their wounds were nearly closed and every indication of bony callus having been deposited around the fractured ends.

I shall have another opportunity of presenting a very large number of cases in a future communication.

No class of surgical cases occur after a battle so important both to the surgeon and the soldier as wounds of the knee-joint.

A wounded man is brought into our hospital soon after he has received a ball through the knee-joint, fracturing bones, or coursing so near the joint as to involve the synovial capsule without any fracture. The man is in fine condition of health, and does not suffer any, and thinks his wound is not of much severity.

Shall we follow the experience and lessons cited in books, and immediately amputate above the seat of injury. One year ago I would have considered myself justified in doing so. At a meeting of the Army Medical Society, held in Washington, not a year since, the universal voice of the members present was to the effect that no case of recovery had occurred in their practice. Esmarch says :—

"In all gunshot wounds of the four greater joints of the extremities, in which the bone is at the same time injured, the question is only whether the limb shall be removed, or its preservation attempted by the performance of resection." Again, "All gunshot injuries of the knee-joint, in which the epiphysis of the femur or tibia has been affected, demand immediate amputation of the thigh. It is a rule of deplorable necessity already given by the best authorities, and which our experience fully confirms."

Guthrie states :—

"Every gunshot wound of the knee-joint when one or both epiphyses are struck, requires immediate amputation. He has not seen a single case recover without removal of the limb."

McLeod, in his *Surgery of the Crimean War*, says :—

"The knee, when penetrated by gunshot, presents an injury of the gravest description. Taking much interest in cases of this description, I visited every one I could hear of in camp, and can aver that I have never met with one instance of recovery in which the joint was distinctly opened, and the bones forming it much injured by a ball, unless the limb was removed."

With such precepts and experience I was slow to come to a conviction that very many cases which I had seen go on to an unhappy conclusion, might have been saved.

It seemed to me that the patients had not so much died from the injury itself as from timid surgery. A wounded joint, within forty-eight hours begins to swell, and becomes tense, shiny, and painful, and soon fluctuation is felt within the capsule and exteriorly. This may be delayed for several days by cold applications. Matters go on from bad to worse; there is discharge from one or both wounds, but which does not relieve the distension. The general system finally succumbs, and after death we find the joint cavity and all the tissues above and below the knee with burrowing abscesses. It is a rule of surgery to give free exit to pus wherever it is detected, and more especially when beneath fibrous and unresisting tissues. Now, if we apply this good precept to the knee-joint as soon as we find distinct fluctuation, shall we not save the increase and spread of the pyo-

genesis? Shall we fear to freely open the knee-joint? Are we not told that shell wounds tearing open the joint are less dangerous than gunshot or punctured wounds?

Are not amputations and resections at the joints abundantly successful?

By such reasoning I had determined as soon as opportunity presented, to risk a trial to save a limb, and this occurred.

CASE I. Sergt. Haynie, Q. M. Sergeant 10th Ohio Cavalry, while on a foraging expedition, June 6th, a few miles from Murfreesborough, Tenn., received a gunshot wound of the left knee-joint; the ball struck the centre of the patella, and passed through, comminuting it; it then passed outward and backward, involving the articular surface of outer trochanter of femur, tearing the capsular and lateral ligaments.

He was brought to the Field Hospital immediately, and soon after seen by several surgeons. I recommended that the track of the wound should be laid open and a free incision made into the joint, the limb firmly fixed in a good position, and cold irrigation applied.

This was done effectually as soon as swelling and redness appeared, and the fragments of patella removed at various intervals. No pus was allowed to accumulate or burrow. Cold or warm water dressings were used, as most comfortable to the sensations of the patient. Everything progressed most favourably, and when I left the post,<sup>1</sup> Sept. 14th, the wound was nearly closed, and the patient had some motion of the joint.

CASE II. Adjutant Y. Caswell, Georgia Sharpshooters, C. S. A., was brought to the hospital, June 26th; a ball had struck the outer condyle of the femur, glancing downwards, opening the capsular ligament of the knee-joint, and made its exit in the leg, opposite the middle of the fibula.

The utmost rest of the joint and ice water applications seemed to strangle all excessive action; the wound suppurated kindly, and he was so far recovered as to allow his being sent to Nashville, July 27th.

CASE III. Capt. Pettigrew, 20th Tenn. Confederate army, was admitted the same date, with gunshot wound of the right knee-joint; the ball had entered above the external condyle, fracturing it and passing out posteriorly. For some days no inflammatory symptoms of severity occurred under complete rest and cold applications, and so comfortable was he, that he got out of bed and attempted to walk. This brought on active inflammation of the joint, with abscesses in and around it, and he suffered terrible pain. Extensive openings were made so as to thoroughly drain off all collections of pus, and he passed through the usual course of such cases, until Sept. 6th, when he began to improve, the discharge being diminished and more healthy, the swelling subsiding, his appetite and sleep good, and mind cheerful.

On Sept. 16th, the record declares him greatly improved and beyond all danger.<sup>2</sup>

Nov. 25th. Prospects of complete recovery with ankylosis.

<sup>1</sup> Nov. 25th. I have since learned that he went on furlough, the wound having entirely closed.

<sup>2</sup> Nov. 30th. Has just returned from furlough with a good joint and considerable motion.



**CASE IV.** Private Edward Phipps, Co. I, 6th Indiana, received a wound in the right knee-joint, July 5th; the ball entered on the outer side, passing through between the patella and articulations of the femur and tibia, and passing out on the inner and lower side. No fracture could be felt. He had considerable swelling and inflammation of the joint, but no abscesses, and Sept. 13th was furloughed with ankylosis of joint, and able to move about on crutches.

**CASE V.** Private Adam Loutenschlager, Co. A, 77th Penn. Volunteers, admitted June 27th, gunshot wound; the ball entered in front near the attachment of the biceps, above the patella, and penetrated the joint. The ball was extracted at the hole of entrance. Ice water dressings were applied to joint with absolute rest; active inflammation set in, attended with purulent deposit in the joint and burrowing up the thigh. Free incisions were made, but later than I could have wished, evacuating unhealthy pus. Bandages were applied above and below the knee, and the most nutritious diet with stimulants freely given. Two months of suffering, with great prostration, enormous discharges of pus, and extreme emaciation, were rewarded by a fair prospect of the limb being saved, and Sept. 15th, the patient is recorded as "improving and the discharges from the knee almost ceased." It was thought by the surgeon in charge of the hospital that "he would recover with an ankylosed joint, and the limb nearly straight."

Ten cases of wounds of the knee-joint were admitted (all except Sergt. Haynie) into Hospital No. 1, from the several skirmishes of the advancing army.

Of these three died without operation; one died after amputation; one died of secondary hemorrhage from a branch of the popliteal artery; three were nearly recovered when I left the post, Sept. 15th, and two remained with fair chances of ultimate recovery. Thus we have one-half the cases which will in all probability be saved with useful limbs and various amounts of motion in the joints.

These cases were treated under the most favourable circumstances; the physical condition of the men was most excellent, and soon after the reception of the injury, they were taken to well appointed hospitals, surrounded with comfort, and with every luxury of diet at command, and skilful surgical attendance.

From the unsatisfactory histories furnished me, I am unable to give the details of all the cases; but having been in the habit of seeing them from day to day, I know that three recovered and two promised well; then I was ordered to the front, in anticipation of a battle at Chattanooga. I hope to be able to give more accurate and enlarged notes of the vast number of such cases resulting from the desperate conflict on the Chickamauga.

In conversation with surgeons, several successful cases have been related, and Surg. Goldsmith, U. S. A., at Louisville, related, as a curious fact, that more men have been discharged the service at that post who had received gunshot wounds of the knee-joints with recovery, than where amputations of the thigh had been performed for various injuries.

Injuries of the ankle and foot, involving more or less destruction of the bones, are among the most formidable presented to us after a battle, and from the small amount of apparent destruction, we are induced to give a trial for the conservation of the limb, nor can we at all judge what is going to be the course of the injury, not unfrequently the most formidable go on to a happy termination, while less severe cases result in destruction of all the bones, ligaments, and coverings.

I have been greatly delighted at the result of several of our cases, where I was in great doubt whether they could be saved, and have turned away unresolved what to do. I have more than once been the only opposing voice to amputation, and have rarely if ever had reason to regret my decision.

Six cases of ankle-joint injury and others of the foot were treated and with admirable results; in no case was amputation necessary.

I subjoin the history of two cases:—

Private Henry Hartman, Co. I, 34th Illinois Volunteers, admitted with compound comminuted gunshot wound of left ankle-joint and foot, the ball entering two inches above the internal malleolus and passing out at the inner point of the heel, through the joint and fracturing the malleolar process.

Ice-water dressings, with elevation of foot, free incisions to prevent burrowing of matter, were the means resorted to; violent inflammation followed with great pain for some time, which yielded to the appropriate treatment, and his improvement was rapid, considering the extent and gravity of the wound.

He was walking about on crutches with his foot slung, early in September, and went home on furlough. He will in time have good use of his foot and ankle.

Private A. P. Witson, Co. K, 58th Indiana Volunteers, was admitted June 27th, with compound fracture of the left foot, ball entering at lower end of second metatarsal bone, passing diagonally to the inner, back and lower point of the heel, where it made its exit, fracturing the second and third metatarsal bones, lacerating the tendons and ligaments of the foot extensively in its passage.

The same general course of treatment was adopted, with removal of fractured pieces from time to time.

He did well, and in September was going about on crutches with best prospects of a complete healing of parts and ultimate use of his foot.

Fractures, by minié balls and shells, of the bones of the leg, except in cases of great destruction, are very favourable. Resections and removal of large pieces result in renewal of the parts, and every surgeon is familiar with the success of conservatism in this part.

There were performed on the field and sent into hospital—

Amputations of the arm	.	.	.	1; of which died 0; remaining 1
"	"	shoulder	.	1; " " 1; " 0
"	"	leg	.	2; " " 1; " 1
"	"	mid. 3d thigh	.	2; " " 1; " 1

There were performed after admission into the hospital—

Amputations of left leg . . . . .	1
“ “ low. 3d thigh . . . . .	1
“ “ mid. 3d “ . . . . .	1
“ “ knee-joint . . . . .	1
“ “ trephining . . . . .	1
Ligature of femoral artery . . . . .	1

All of which were fatal.

One case of ligature of the carotid (external) was successful.

All these were secondary operations performed from two to six weeks after injury, and all but the cases of ligation of arteries and trephining were in the field hospital, where depressing causes alluded to above existed, and which explains the great mortality.

MURFREESBOROUGH, TENN., Nov. 25, 1863.

ART. IV.—*A Description of some Instances of the Passage of Nerves across the Middle Line of the Body.* By JEFFRIES WYMAN, M. D., Hersey Prof. of Anatomy in Harvard College.

BICHAT appears to have been the first anatomist who pointed out the existence of a communication between the peripheral nerves of the right and left halves of the body. He has not entered into any descriptive details of it, and the substance of what he says may be found in the following words:—

“Sometimes two nerves of the same pair, or those of two different pairs, but from each half of the nervous system, unite on the middle line, examples of which are seen in the superficial nerves of the neck, in those of the chin, &c. This union does not take place on the abdomen, where the middle line, entirely aponeurotic contains no nervous branches in its tissues. It is, perhaps, by these anastomoses, that the persistence of motion in certain paralyzed parts can be explained. They are, however, quite rare.” \* \* \* “If each nerve had them it is evident that hemiplegias could hardly take place, for the healthy side of the brain or of the spinal cord could influence through them the nerves of the diseased side.”<sup>1</sup>

Meckel<sup>2</sup> and Beclard<sup>3</sup> subsequently announced similar views with regard to

<sup>1</sup> Bichat, *Anat. Gén.*, t. i. p. 133. Paris, An X. (1801).

<sup>2</sup> Meckel admits three kinds of anastomosis; the first and second are found on one and the same side of the body; the third is between two homonomous nerves from opposite sides, as in the subcutaneous branches of the fifth and of the seventh pairs, or between some of the nerves of the neck.—*Manuel d'Anatomie*, t. i. p. 229. Paris, 1825.

<sup>3</sup> “Anastomoses sometimes take place between branches of the same nerve, sometimes between different nerves, and more rarely between nerves of one side and those of the opposite side.”—*Elements of General Anatomy*. Translated by Robert Knox, M. D., p. 346. Edinburgh, 1830.

the union of the two valves of the nervous system at certain points, but describe it only in general terms.

Cruveilhier, in commenting upon the opinions of Bichat, appears to have misunderstood him, and implies that Bichat asserted the existence of anastomoses along the whole length of the median line ("*les anses nerveuses que Bichat indique sur tous les points de la ligne mediane du corps.*")<sup>1</sup> We do not find any proof of the correctness of Cruveilhier's impression, either in the passage first quoted, nor elsewhere in the writings of the great French anatomist. Having denied the existence of such communications, Cruveilhier says: "The only anastomoses on the middle line with which I am acquainted, are those of the pneumogastric, behind the lower end of the trachea, that of the two solar plexuses, and that of the cardiac nerves."<sup>2</sup> He, however, omits to add that of the phrenic nerves, of which he makes especial mention on another page.<sup>3</sup>

Vogt, in his account of dissections of the nervous system of reptiles, describes and figures the anastomosis of the hypoglossal, xii., in the tongue of the alligator, *Champsia sclerops*.<sup>4</sup>

Hyrtl, the most accurate and pains-taking of living anatomists, in his description of "endless nerves," notices especially the anastomosis of the right and left hypoglossal in the fleshy portions of the genio-hyoid muscles.<sup>5</sup> Hirschfeld and Leveillé, in their *Iconography of the Nervous System*, describe and figure the anastomosis of the lingual branch of the trigeminus at the tip of the tongue, also that of the phrenic in front of the pericardium.<sup>6</sup> Many other anatomists have made mention of one or more of these nervous communications, but it is unnecessary to cite them.

Drs. S. Weir Mitchell and George R. Morehouse, in their admirable *Researches on the Anatomy and Physiology of Respiration in the Chelonía*, have shown that the upper laryngeal nerves not only communicate with each other, but form a symmetrical chiasma across the fore-part of the larynx, and have experimentally demonstrated, that by means of this chiasma, each laryngeal nerve exerts an influence over the muscles, both of the same and of the opposite side. In connection with these observations they say, "This remarkable nerve furnishes the only known instance in nerve anatomy of an extra cranial chiasma."

In attempting to verify the results of Drs. Mitchell and Morehouse, we have been led to examine other animals, and find that the chiasma proved by them to exist in the turtles, is present also in the iguana, python, and alligator among reptiles, and among birds in the ducks and geese. As it

<sup>1</sup> Anat. Descriptive, t. iv. p. 437. Paris, 1845.

<sup>2</sup> Ibid., p. 437.

<sup>3</sup> Ibid., p. 492.

<sup>4</sup> Beiträge zur Neurologie der Reptilien, p. 44, pl. iv., fig. 2. Neuchatel, 1840.

<sup>5</sup> Nat. Hist. Review, vol. ii. p. 97.

<sup>6</sup> Neurologie, ou Description et Iconographie du Système Nerveux, par MM. Ludovic Herschfeld et J. B. Leveillé, pl. 41, fig. 2, and pl. 91, fig. 4.

differs but little, in the animals just mentioned, from that already described in the turtles, a general account of it is all that will be necessary. It should be borne in mind, however, that the movements of the larynx are controlled by a similar set of muscles in all of them, viz., by a pair of constrictors, or arytenoids (Figs. IV. and V., *a*), sometimes so intimately connected as to appear as a single muscle, and a pair of dilators, or crico-arytenoids, exterior to and crossing the preceding in a nearly vertical direction (Figs. IV. and V., *b*). It is, probably, in consequence of this similarity of muscular arrangement that the distribution of the nerves in the larynx is so nearly the same in all.

*Laryngeal Tracheal Chiasma in Birds.*—This has been carefully studied in ducks and geese. In order that it may be fully understood, it will be necessary to begin with a description of the glosso-pharyngeal nerve at the place where it escapes from the cranial cavity. This nerve, as far as it has been examined, when it leaves the cranium receives, in most birds, a large communicating branch from the vagus, which, from the subsequent distribution of the nerve which it joins, and from there being no separate branch corresponding with the upper laryngeal, must be considered as forming, or at least containing, this last mentioned nerve. Near the point where the two nerves are thus united a branch is given off which is directed forwards, and a little lower down a second, which follows the course of the hyoid bone, unites with the preceding (Fig. I., 1), and enters the base of the tongue. In its distribution through the tongue we find a very marked instance of a connection between the nerves of the two halves of the body. As the right and left nerves enter the base of the organ, and after giving off a large branch to the salivary glands (2), the trunks divide into two strands, which almost immediately come together again; each trunk then extends along the whole length of the tongue near the median line, giving branches outwards to the borders, and inwards others, of which about six are continuous from opposite sides across the long axis of the tongue. These nervous communications are oblique, unsymmetrical, and contain numerous nerve-tubes, especially the one near the base, which is much the largest.<sup>1</sup>

The terminal portion of the glosso-pharyngeal (3) after giving a small branch to the cesophagus, passes to the side of the larynx. There the trunk, which must now be considered as consisting wholly of the upper laryngeal, supplies, by its posterior branch (4), the muscles of the larynx and the mucous membrane in and near the glottis; it then becomes united with its fellow by means of a symmetrical but quite slender chiasma. This is smaller than either of the trunks which it connects, and from this circumstance it seems probable that the influence of each nerve on the mus-

<sup>1</sup> In the class of birds generally the glosso-pharyngeal supplies the tongue with all of its sensitive branches, unless there be a few fibres combined with it from the vagus. The lower maxillary branch of the fifth gives off no lingual branch. Among reptiles the same is for the most part true.

cles of the opposite side would be less than on those of the same side. From each angle of the chiasma a slender nerve passes forwards, giving a

Fig. I.



**NERVES OF THE TONGUE AND LARYNX IN THE GOOSE.**—*a*, the tongue; *b*, the larynx; *c*, the long tracheal muscles; *d*, the trachea; 1, glossopharyngeal nerve; 2, branch to the salivary gland; 3, upper laryngeal nerve and decussation; 4, branch to laryngeal muscles; 5 and 6, the two decussations of hypoglossal.

of the hyoid bone (*c*), converge towards the body of it (*d*), and between the bases of the horns, and on the under or fore side of the body, form a very short, but perfectly distinct and symmetrical chiasma, measuring only the one-tenth of an inch in length. From each angle of it a nerve passes forwards, the branches of which are distributed to the muscles of the

slender filament to the laryngeal muscles, and at last unites with the lingual branch of the glossopharyngeal, 1.

The preceding description is drawn entirely from the goose. In the duck the chiasma of the laryngeal has a similar structure, but the decussations of the lingual nerve are mostly confined to the central part of the tongue. The trunks of the nerve in the forepart of the organ are separated by a fibrous raphé, across which no filaments were traced.

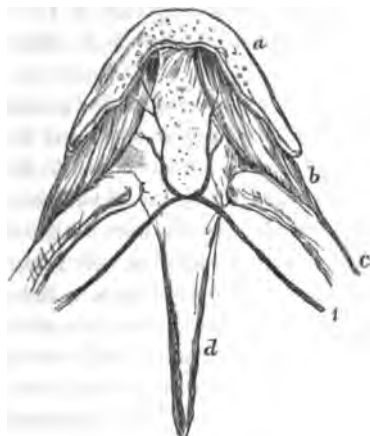
On tracing the hypoglossal nerve to the long muscles on the front of the trachea, decussations of the right and left nerves are easily demonstrated. Two of these are represented in Fig. I. at 5 and 6.

In dissecting from the detached larynx of the African ostrich, the lingual nerve, which, in its distribution, corresponds with, and undoubtedly is, the glossopharyngeal, no chiasma was detected in the usual place, though it is possible that it may have been accidentally destroyed in the removal of the organs. The right and left nerves, after having supplied the muscles and mucous surfaces of the larynx, advance to the tip of the tongue, where they anastomose very freely, the two trunks forming a continuous arched nerve across the middle line.

The hypoglossal nerve differs quite remarkably from the same part in the other animals here described. The nerves (Fig. II., 1) following the horns

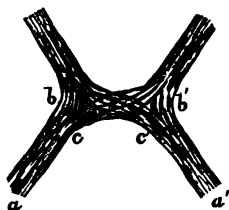
tongue. This structure and distribution of the hypoglossus in the ostrich resembles that of the same nerve described by Vogt as existing in the alligator.<sup>1</sup>

Fig. II.



TONGUE AND A PORTION OF THE HYOID BONE OF THE OSTRICH.—a, a portion of mucous membrane of the tongue; b, hyo-glossus; c, cornu of the os hyoides; d, body of the same; l, hypoglossal nerve and chiasma.

Fig. III.



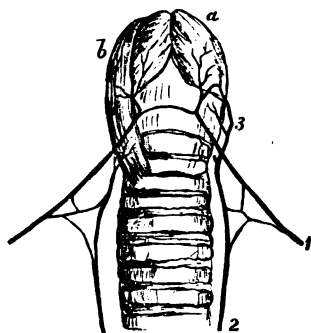
Chiasma of the hypoglossus in the ostrich.

The chiasma (Fig. III.), when examined under the microscope, is easily resolved into two sets of fibres. Each nerve trunk (*a, a'*) divides into two bundles, one of which passes directly forwards to the muscles on the same side (*b, b'*), and the other (*c, c'*), crosses to the opposite side. As the bundles pass each other in the chiasm, the fibres

become somewhat separated and spread out. The number of fibres in the direct and decussating bundles are about the same, therefore the influence of each nerve on the muscles of the opposite, is, undoubtedly, equal to that on those of the same side with itself.

*In the Python.*—As the larynx upon which this dissection was made had been cut away from the surrounding parts, the connections of the laryngeal with the other nerves were not traced. The recurrent, Fig. IV., 2, and the upper laryngeal, 1, form a small plexus by an interchange of fibres before they reach the larynx. The chiasma between the right and left branches of the upper nerve is much more slender than in either of the other animals here described, and was traced with great difficulty. The terminal branches of the nerve are distributed

Fig. IV.



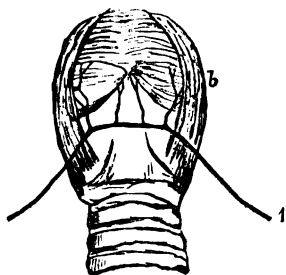
LARYNX OF PYTHON.—a, constrictor of the glottis; b, dilator; 1, upper laryngeal nerve; 2, lower or recurrent nerve; 3, communicating branch between the upper and lower nerves; the left dilator is removed.

<sup>1</sup> Ibid., pl. iv., fig. 2.

to both the contractors, *a*, and the dilators, *b*. The recurrent nerve is mainly distributed to the dilators, or crico-arytenoids, as in turtles, but in addition forms a communication with the superior laryngeal by means of a very slender filament, 3, which lies beneath and is concealed by the muscles just mentioned. In this case the chiasma is so slender that it seems improbable that either laryngeal nerve should exercise as much influence on the opposite as on the same side with itself.

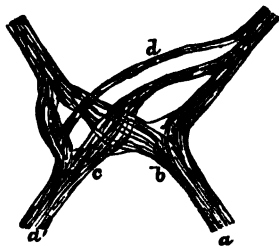
*In the Alligator.*—As in the preceding, the dissection was made on a detached larynx. The chiasma is relatively larger than in either of the

Fig. V.



LARYNX OF ALLIGATOR.—*a*, constrictor; *b*, dilator; 1, laryngeal nerve and chiasma.

Fig. VI.



Chiasma of the laryngeal nerve of the Iguana.

other instances; is of the same size as the trunks which contribute to the formation of it, and is protected by a very thick sheath of white fibrous tissue; in addition to branches of nerves distributed to the muscles as in the python and the birds, two others are given off near the median line, which perforate the walls of the larynx and are distributed to the mucous membrane within. The recurrent nerve was not traced.

Drs. Mitchell and Morehouse have inferred from the crossed influence of the nerves on the muscles of the larynx in the turtle that there is a decussation of fibres. "Part of each nerve probably proceeds directly to the glottic muscles of its own side, while another strand crosses over through the interlateral trunk to be similarly distributed to the two muscles of the opposite side."<sup>1</sup> We have made a microscopic examination of the chiasma of the laryngeal nerve in the iguana (Fig. VI.), and find their inferences fully confirmed; the structure of it being, in its essential features, like that of the hypoglossal nerve in the

ostrich. It presented the following irregularity: The fibres from the trunk, *a*, are divided into two strands, one of which passes forwards on the same side, and the other, *b*, crosses in a single mass to the opposite side. Those from the trunk, *a'*, divide into three parcels; one going forwards is separated from the decussating fibres of *a* by an interval filled with fatty matter; a second, *c*, crosses to the opposite side in a manner nearly symmetrical with *b*; and the third, *d*, the smallest, crosses still further forwards. These two comprise all the decussating fibres from *a'* toward *a*. As the bundles *b* and *c* pass each other, their fibres become separated and spread out after the

<sup>1</sup> Researches, p. 35.



manner of nerve fibres in a ganglion. The fibres of *d* pass over the chiasma free. This arrangement gives an unsymmetrical character to the parts, but is most probably only an individual peculiarity.

It appears from what has just been stated that various peripheral nerves from opposite sides of the body form decussations with each other, all of which can be traced by dissection without the aid of the microscope, or at most requiring that of a very low power. The nerves which contribute to such interchanges of filaments are the fifth, the hypoglossus, the laryngeal, and post-tracheal branches of the vagus, the phrenics, and the sympathetic. Drs. Mitchell and Morehouse have demonstrated what had not been previously observed, that in turtles the upper laryngeal nerves form a symmetrical chiasma, to which the right and left trunks equally contribute. Following the lead of their investigations, we have found a similar arrangement in the iguana, python, and alligator, among reptiles, and among birds in the duck and goose, rendering it quite probable that it may be found generally among the two classes of animals just named. We have not found it in the ostrich, and have looked for it without success in a few mammals. We have further ascertained that the hypoglossal nerve of the ostrich forms a chiasma, quite as remarkable as that of the laryngeal in either of the animals which have been previously mentioned in this communication.

The inquiry naturally presents itself here whether these are the only instances, and whether decussations or anastomoses of less size, occurring between terminal filaments of nerves, but too small to be detected, except by the aid of the microscope, do not exist elsewhere on the anterior and posterior median line. We find no notice of such communications in the textbooks of histology commonly in use, and no mention of them either in the works of Kolliker, Virchow, or other more recent writers on microscopical anatomy.

To answer the question thus raised we have made our examinations for the most part on the skin of the abdomen, and on the mucous membranes of the roof of the mouth of the frog and the skate. These parts were chosen on account of their thinness, and the absence of pigment, two conditions of great importance to the successful investigation of their minute structure. The parts to be examined were treated in the first instance with dilute nitric acid, in order to make the nervous fibres opaque, then carefully washed in water, and just before being placed under the microscope immersed in a solution of caustic soda. This renders all the other tissues highly transparent. Adopting this method, we have been able to trace, with ease, the course of the nerves through the whole thickness of the skin, without being obliged to have recourse to sections by which the natural arrangement of parts is often too much disturbed to admit of correct study.

The following are the appearances which have been frequently observed

in the nerves as the two halves of the peripheral system come together. The different nerve trunks of small size, and of one and the same side, as they approach the median line, interchange fibres very freely, making an intricate plexus, which forms a network not unlike that of the capillary bloodvessels. The nerve-angles which result from the division of a trunk into branches are formed either by two bundles of fibres diverging from each other as in all the larger nerves, or by three, the third bundle passing along one of the branches to the point of separation, and is then reflected off into the other. The fibres of these different bundles become so intermixed that we have found it impracticable to follow them, except for a very short distance, from the angles. In the immediate neighbourhood of the median line the number of fibres in a nerve gradually diminishes, and there may be as many as twelve, or as few as two or three or even one. It is by such as these that right and left halves of the peripheral system are connected.

Fig. VII.

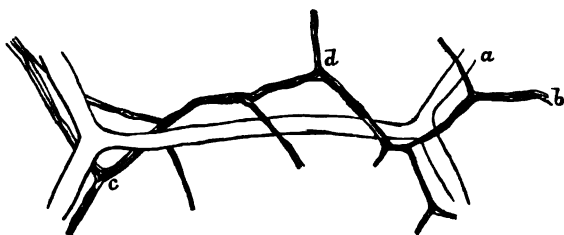
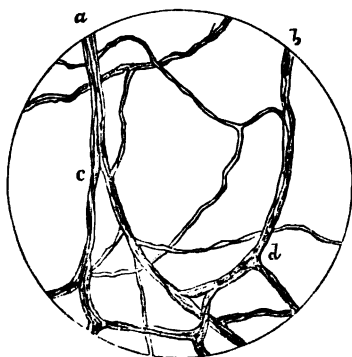


Fig. VII. represents one of these communications between the two sides, seen in the skin of the abdomen of the frog, following, as is very frequently the case, one of the small bloodvessels, *a*; *b*, the trunk of a nerve; *c* and *d*, nerve-angles of three bundles of fibres. Fig. VIII., *a*, nervous plexus

Fig. VIII.



from the under side of the head of a skate, *Raia batis*; *a* and *b*, two nerves, one on the right and the other on the left of the median line; *c*, a nerve-angle of two bundles of fibres; *d*, a nerve-angle with three bundles. Between the two trunks, *a* and *b*, are various communicating branches. The interchange of fibres in this specimen is greater than is commonly the case, especially at the lower part of the figure. Nevertheless we have succeeded in tracing, without difficulty, communications of different degrees of complexity, between the right and

left halves of the nervous system, at almost every point on the roof of the mouth and in the skin of the abdomen in frogs, and in various parts of the integuments of the under side of the body in skates.

Physiological questions of considerable importance grow out of the anatomical conditions described above. The experiments of Drs. Mitchell and Morehouse prove that certain motor fibres actually do cross the median line and influence muscles on the side opposite to that of the half of the central axis from which they arise. The extent of their influence, it is true, is confined within very narrow limits. Have the sensitive nerves an analogous relation to the two sides of the body? May an impression made upon a given point on the skin be carried to the chord across the median line? We are aware of no experiments which give an answer to these questions. The answer from pathology as far as it goes is in the negative. Dr. Copeland expresses himself distinctly in the following words: "The more extended forms of partial anæsthesia generally appear in one half of the body, hemiplegic anæsthesia, and is limited with precision by the median line."<sup>1</sup> It is to be borne in mind, however, that few writers appear to have made the precise limitations of paralysis of sensibility a special subject of study. New investigations are required to enable the physiologist to form a decisive opinion as to whether the boundaries are in all cases so precise.

There is another question which seems to us an appropriate one here. Do the fibres under consideration, or some of them, pass entirely around the front of the body and enter the chord on the side opposite to the one from which they started, and thus come into the category of "endless nerves?" That this supposition is not improbable is shown by the facts, long since established by Volkman, Gerber, J. Müller, and others, that in each lateral half of the body certain nerve-fibres pass out to a greater or less distance from the chord, and then without having become connected with any tissues return to it either on the same or on an adjoining trunk, forming what Henlé calls "nerves without peripheral expansion." The observations of Newport, on the nervous system of articulate animals, show that certain nerve-fibres pass through the ganglion from side to side, having no end. And the more recent observations of Lockhart Clarke, and Deane, demonstrate an analogous fact in the human spinal chord. May not the peripheral system have its analogous loops?

*Note.*—Since the above communication went to the press we have met with two other instances of a union between the right and left hypoglossal nerves; one in a seal, *Phoca vitulina*, just below the larynx, passing symmetrically across the whole front of the trachea; and a second in the "pinnated grouse," *Tetrao cupido*, where the communication was found

<sup>1</sup> Med. Dictionary, article Paralysis, vol. vi. p. 13, American edition.

in two individuals, and in both made by means of an oblique trunk, descending from right to left, across the trachea just below the larynx, passing, in its course, over several tracheal rings, and thus differing from the other instances in having an unsymmetrical arrangement.

The following citations may be added to those already given:—

Bach (*Annotationes Anatomicæ de Nervis Hypoglosso et Laryngeis, Dissertatio Inauguralis*, Turici, 1834) states that, in the dissection of thirty-two human bodies, he found between the genio-hyoid and genio-glossus muscles, an anastomosis of the right and left hypoglossal nerves three times.

Cloquet (*Traité d'Anatomie Descriptive*. Paris, 1828, t. ii. p. 129) describes a communication between the right and left laryngeals in the mucous membrane of the interior of the larynx; also one between the non-palatine nerves in the foramen incisivum.

T. Miller (*Berlin Transactions*, 1835) describes the anastomosis of the organic nerves on the dorsum of the penis.

---

ART. V.—*On the Disease produced by the Trichina Spiralis.* By WM. KELLER, M. D., of Darmstadt, formerly of Philadelphia.

THE comparative frequency in Germany of the recently discovered disease produced by *Trichina*, has induced me to collect the following facts in regard to it:—

*Discovery of Trichina Spiralis.*—Mr. T. Hilton, Demonstrator of Anatomy at Guy's Hospital, found, in 1832, in dissecting the body of an old man, who had recently died of a cancerous affection, a large number of small white bodies, dispersed in the substance of the voluntary muscles. On a close examination he found them to consist of oval calcareous cysts. He first described them in the *London Medical Gazette*, in 1833, vol. xi. p. 605. He believed that the cysts belonged to a new class of intestinal animals, and were of no important consequences to the human system. In 1835, Mr. R. Owen found a small filiform animal in the capsule (a fact which Mr. J. Paget, then a student, had already suspected). Considering the animal a new one, he called it *Trichina spiralis*. By careful examination, the animal will be found more or less frequently in the dissecting-room. At first, the *Trichina spiralis* was considered as quite low in the animal scale; but afterwards, on a closer examination, a mouth, stomach, intestine, anus, and even perfect genital organs were observed. Some naturalists regarded them as perfectly organized animals; but the majority, misled by the discoveries of Siebold and Dujardin in 1844, believed them

to be forms of animals in a transitory state, which were destined for a higher development. The discovery of Küchenmeister, in 1852, that, by feeding, cysticercus was changed in tænia, seemed still more to sustain this belief; and, led by the similarity of the organization, he considered himself justified in the conclusion, that trichina spiralis was the primitive state of trichocephalus dispar. Prof. Leuckart's assertion, that, in America, raw pork was considered a cause of this intestinal worm in the human system, seemed to afford additional proof of this. The latter now made a number of experiments by feeding warm-blooded animals with trichina. First he used mice for that purpose, and found, on the third day, the intestinal animal free, out of its shell, increased to double its former size; but on finding afterwards, in a pig, which he had used for that purpose, a number of trichocephalus dispar in a perfectly developed state, he was strengthened in his former opinion. Prof. Virchow published (*Archiv*, bd. xviii., hft. iii.-iv.), soon after, the result of his experiments on the subject, in which he had found a number of nematodes in the intestines. These he believed to be the descendants of trichina spiralis, but only in a transitory state, which would progress to their highest organization in the muscular fibre, enveloped by the shell. Prof. Herbst (*Gött. Nachr.* 1852, Niz. p. 183) was the first to discover, by his experiments, that the trichina spiralis was changed into a free animal, reproducing young ones (then called intestinal trichina), which migrate again to the muscles of the individual. Prof. Leuckart (*Untersuchungen über Trichina Spiralis*, 1860), by his extensive experiments, has since confirmed this, and of course proved that trichina spiralis is perfectly distinct from trichocephalus dispar, or any other intestinal animal. He fed first three dogs, each with one pound of meat, containing, according to his calculation, 300,000 encysted animals, measuring 0.4-0.5 mm., or about  $\frac{1}{4}$  of a line. Soon after he perceived derangement of digestion, which disappeared in a few days. The fourth day, on killing one of the dogs, he found a considerable portion of the bowels inflamed, and numberless animals, which had increased to such a size that he could perceive them even by the naked eye. With the microscope he distinguished, without any difficulty, in some eggs, in others sperm. The eggs attained their perfect maturity in the body of the female, of which he was able to count over 100. The calcareous shell, of course, had disappeared, and he was able to follow the young ones, whilst they migrated through the intestines to their entrance into the muscular fibre, where he observed them sometimes partly entered, in other cases already in their resting-place, and once or twice convoluted. The calcareous shell is produced by changes in the muscular fibre, which, by the penetration of the animal, loses its peculiar structure, contracts around the parasite, and becomes changed into a calcareous shell. There are sometimes more than one animal in a cyst, which, on irritation with a diluted solution of potash, exhibit motion. They are always coiled in one

direction, as had already been ascertained by Bristowe and Rainey. (*Transactions of the Path. Society of London*, vol. v. p. 277.) A number of the animals pass through the alimentary canal without any change.

*Description of Trichina Spiralis.*—This parasite belongs to the family of the Nematodea, and has, according to its state of development, a length of  $\frac{1}{8}$  to  $\frac{1}{4}$  of a line. By a power of 600 diameters, in transparent specimens, a pointed mouth and an obtuse anal end may be seen. The former is connected by a tube (œsophagus) with a sac (stomach), and from this another straight tube (intestine) leads to the anal opening. (*Virchow's Archiv*, bd. xviii., hft. iii.—iv., tables ix. and x.) The females are larger than the males, and contain the ovaria and the eggs in tubular organs, which expand towards the posterior end of the body, along the intestine; but they are smaller towards the anterior part, which contains the enlarged stomach, and have, at the anterior third of the body, their opening. The males are smaller in the same proportion as the size of their genital organs is less than that of the females. Their internal organization is similar, except in regard to the seminiferous organs, which reflect towards the posterior part of the body, and unite, by an enlarged opening in the sac, and finally with the anus, where are found two chitinic protuberances. Having no need for respiratory and masticatory organs, the animal does not possess them. Three or four days after the trichina spiralis has been introduced into the stomach of a warm-blooded animal, the females produce 100 or more young ones, which begin, on the sixth day, to leave the parent animal; and as there have been found 300,000 in half a pound of meat, the stomach and intestinal canal of a person may, in a few days after the ingestion of such an amount of meat, contain 30,000,000 individuals of trichina spiralis, the proportion of the males to the females being so small as 1 to 10 or 20, and, in a later period, even 1 to 40, and the number of young ones taken at the lowest figure.

*Description of the Disease.*—The disease produced by the perforation of the intestines by the trichina spiralis has been observed, and, as we shall see, was even described some time ago without the author's, however, understanding the real cause of it.

Prof. Zenker, of Dresden, was the first to recognize the real nature of this disease, which he did in describing the following case:—

A servant girl, twenty years of age, was admitted, on the 20th of January, 1860, into the Jacobs Hospital, which is used for clinical lectures. She had been sick for four weeks, and had been obliged to keep her bed for the last three. At the beginning of her sickness, she had suffered with great debility, sleeplessness, want of appetite, and fever. At the time of her admittance, she had a great deal of fever, the stomach was considerably expanded, painful to the touch, and she had, at the same time, obstinate constipation. Soon afterwards she felt great pains in the muscles, particularly in those of the arms and legs, so that she was complaining of them day and night. At the same time she kept her arms and legs con-

stantly flexed, and every effort of extension was very painful. A few days later œdema supervened, particularly of the lower extremities, and she died the 27th of January, with symptoms of inflammation.

All the symptoms of the disease corresponded with those of typhoid fever, except in regard to the spleen, which showed no increase in size. On post-mortem examination, numberless trichinæ were found in the voluntary muscular fibres. A small portion of mucus of the ilium showed, under the microscope, perfectly developed trichinæ. The real cause of the disease was furnished Prof. Zenker by the information that, a few days previous to the sickness of the girl, the people with whom she lived had killed a pig, whose hams and meat, used in sausages, showed by a microscopic examination, an infiltration of a large number of trichinæ spirales. At the same time it was ascertained that the butcher who had been employed, had also been affected for three weeks with a painful attack of gout, which kept him for that time paralyzed, and which was believed to be the result of a cold.

Since that time a great number of cases have been observed, sometimes single, oftener quite a number together. It is not my purpose here to narrate all of them; but shall refer to a few as they serve to illustrate the phenomena of the disease.

In 1860, three individuals were affected in Corbarch, Waldeck, after eating raw meat finely cut, and sausage. They manifested the symptoms of typhoid fever, with great pains in the stomach and muscles. All three recovered.

There occurred in 1862 a number of cases in Plauen, a town in the kingdom of Saxony. Drs. Böhler and Koenigsdoerffer, the physicians of the town hospital, examined under the microscope at first a small piece of the gums of the patients, without being able to discover any of the animals, though on excising a small piece of the muscular fibres of the arm they observed readily in it the trichinæ moving lively. According to the publication of Dr. Böhler, he has observed thirteen cases, and ten or twelve besides occurred in the town at the same time. One-fifth of them were very severe, though with the exception of one, all got well, some only four months after the first symptoms; the subject of the fatal case was a female, who died after two months of great suffering with dropsy.

A number of cases also occurred in 1862, in Kalbe, in Prussia, of which nine were in males and twenty-five in females, and four in children; eight terminated fatally, the others had all more or less severe suffering.

A number of cases occurred lately in Hettstadt, a town of five or six thousand inhabitants in Prussia, famous for its mining region. The disease broke out in the middle of last October, and was produced by the consumption of sausages in a half cooked state. The diagnosis was confirmed by taking out small quantities of voluntary muscle by the harpoon invented for that purpose by Middeldorpf, and on microscopic examination, the trichina spiralis was everywhere detected. I was induced to make further inquiries respecting this disease in consequence of the death from it

of a Mexican whose relatives reside here. An intelligent physician, Dr. Müller, of Homberg, who was a near relative of the deceased, gave me the following particulars of his case:—

"In the evening of the 9th of November last I was summoned by a telegram from the physician of Hettstadt, informing me that a relation of mine was suffering from the trichina disease; that he had also a pneumonic affection, and was very ill. On my arrival on the following day I found the patient—who previous to the attack was a strong and very healthy man, twenty-three years of age—perfectly conscious, with a slight œdematous swelling of the face. On examination of the chest a dull sound over about an inch and a half of the lowest part of the lower lobe of the left lung was produced by percussion; crepitating rattles were audible, but there was no bronchial breathing, thus showing the beginning of resolution of the pneumonia; at the lowest part emitting the dull sound there was a slight pleuritic rubbing. The pulse was 140, respirations 41, and the temperature of the body 39° centigrade.

"The symptoms of the disease had commenced on the 16th of October with loss of appetite and diarrhoea, followed by a sensation of painful weakness in the limbs and difficulty in moving the tongue; the pulse being above 100. The patient was not confined to his bed during the day-time until the 6th of November, when the pneumonic symptoms commenced.

"The day after my arrival (Nov. 11th) the pneumonic symptoms were unaltered, with the exception of the pleuritic rubbing, which had moved a little higher up. The whole of the pleuro-pneumonic affection was so very trifling that it certainly did not account for a pulse of from 140 to 150, and for the violent oppression, or rather, as the patient explained it himself, 'the weakness in drawing his breath.'

"The following day the frequency of respiration varied between 30 and 60; the pulse was more than 200, and very weak; the temperature had fallen to 36°6' centigrade, and the body was covered with a profuse clammy perspiration. The other physical symptoms were the same as before, and the pleuritis had not extended higher. The complaint of weakness in breathing, or, as the patient called it, 'the impossibility of drawing a sufficient quantity of air into the lungs,' was increased; but he remained conscious and resigned, so much so that he several times asked me at what hour I expected he would die.

"At seven o'clock on the evening of the 12th of November he died.

"The *post-mortem* examination, performed on the 13th, proved an infiltration of a part of the lower lobe of the left lung, extending upwards about an inch and a half from the lower margin of the lung, and about three or four ounces of liquid exudation in the pleural cavity of the same side. When examining the chest and intercostal muscles, I found, in every small piece of the muscle placed under the microscope, trichinae partly wound up, but not capsulated, partly forming a single sling, and partly extended. In the examined parts of the heart and diaphragm no trichinae were discovered.

"On the day previous to the above-mentioned *post-mortem* examination, I examined with the microscope several small pieces of muscles which had been taken from the bodies of persons who had died of the disease, and were given to me by the physician of Hettstadt, Dr. Rupprecht, and I found a considerable number of trichinae in them.

"Previous to my departure from Hettstadt eighteen to twenty persons had died of the trichina disease, and more than eighty persons were at that period afflicted with the same malady, produced by the same cause.

"According to the information I obtained on the spot, the disease begins a few days after eating the meat in which there were trichinae, with loss of appetite, and, almost without exception, with diarrhoea and fever, œdema of the eye-lids, also pain, or at least painful sensation of weakness, in the limbs, œdema of the joints, difficulty in moving the tongue, profuse clammy perspiration; and those patients who do not become convalescent die either unconscious, with symptoms of typhus fever, or in a few cases remain conscious to the end, complaining of inability to breathe freely.



"The only important symptom of typhus absent in the disease is the enlargement of the spleen, and it is very probable that some of the so-called epidemics of typhus fever in former days were caused by the propagation of trichinæ in the human body.

"Since the disease has been known (about three years ago), a great many cases have been observed in Germany.

"The vitality of the trichinæ is not destroyed unless the meat or other substances in which they are located be subjected to the temperature of boiling water for a sufficient time to insure that every particle has been acted upon by that degree of heat. Salting and smoking trichinous meat, as is usually done, does not appear to be sufficient to destroy the worms in all parts of the meat.

"Picric acid (*acidum picro nitricum*) was tried, with the hope that it might be administered with success to the patient, but it failed.

"In trichinous pork of a pig killed with picric acid, the worms were found alive.

"HOMBERG, December, 1863."

A very interesting paper on intoxication from eating ham, was lately published by Dr. Tüngel, of Homberg, in Virchow's *Archiv*, vol. xxviii., hft. iii., iv., which seems to show most conclusively that it was caused by *trichina spiralis*. The number of persons affected by eating of the ham were nine, and their cases were subjected to a close medico-legal examination, partly by private physicians, partly in the city hospital; I will content myself with giving a short abstract of these cases. In the beginning of the month of June, 1851, a shade painter, in the immediate neighbourhood of Homberg, bought a ham at a lower price than usual, from a butcher whose business it was to furnish ships with hams. Those which he did not think sufficiently salted for use on board ships, he sold at a lower rate. This ham had nothing abnormal in appearance or taste, except that it appeared paler than usual. On examination on the 14th of July, after it had been interred since the 27th or 28th of June, it was in a putrid state in many places; but where still preserved, the surface of a fresh cut appeared of a normal red colour, infiltrated by fly eggs. A dog and a cat, which were fed on it, and kept six days under observation, showed no morbid symptoms. By chemical analysis no metallic poison could be discovered. The wife of the painter was first affected; she felt pain in her stomach a week before she was obliged to keep her bed; then the painter himself and his son were attacked. Of three persons who eat of it on the 25th, two showed symptoms of infection on the 27th, and one on the 29th. A young man, 21 years of age, of the neighbourhood, became sick three days after eating a small piece of it. Two daughters of the painter, the one six and the other eight years old, who had eaten very little of the ham, did not show distinct symptoms until three weeks afterwards.

The painter, his wife, and his son twelve years of age, his sister-in-law and two workmen, were all at first affected with vomiting and diarrhoea; a young man of the neighbourhood, and the two young daughters, who had only eaten very little of it, remained free from these symptoms, but all suffered from the most violent contraction of all the voluntary muscles and œdema.

The painter, his wife, and one of the workmen, died. The post-mortem of the two former gave no results, that of the latter was not performed.

The cat belonging to the family was also so violently affected that, after showing for a few days a pitiful appearance, it was killed.

It is now a matter of course that nearly all cases of intoxication from eating sausages arise from this cause. Dr. Kopp gives in his *Denkwürdigkeiten*, bd. iii. p. 75, a case of this kind, in which, besides the muscles of the larynx and of the neck, those of the eyes were also affected. In all these cases these symptoms did not appear until a fortnight after the consumption of the pernicious food.

*Prevention and Treatment.*—Prof. Leidy, of Philadelphia, was, I believe, the first who observed the trichina spiralis in the pig, the meat of which animal has been, so far as we know, always the cause of this dangerous disease. It ought always to be examined before being used as food, and in case it presents a suspicious appearance, it ought to be subjected to a microscopic examination.

A thorough boiling or roasting, as also intense salting and smoking, will kill the trichinæ, although an imperfect preparation by these methods will not affect these parasites, at least not those in the interior of the meat. Even putrefaction to a certain extent will leave the trichinæ intact. Therefore, as the first rule, suspicious or affected meat should never be eaten. If the character of the meat should be found out a short time after its consumption, the first remedy should be an effective emetic; but if the food has been ingested for five or six hours, and has entered the small intestines, a thorough purging with wormseed or other anthelmintic medicine ought to be resorted to, until the feces, examined under the microscope, are comparatively free of the parasites.

During the period that the disease raged in Plauen, Prof. Friedreich, of Heidelberg, had occasion to treat a case in a young man, a butcher by trade, who recovered after a few weeks. He thought, as picrate of potassa entered the system in a short time after its ingestion, as shown by the yellow colour of the conjunctiva and other structures, it would be advisable to give it in doses of five grains three times a day; but Dr. Fiedler, of Dresden, found, in his late experiments, that the animals infected by the parasite, were killed by the salt sooner than the trichinæ.

DARMSTADT, Dec. 28th, 1863.

[The trichina disease, treated of in the preceding interesting paper, is at the present time exciting great attention, and some further information in regard to it will, we conceive, be interesting to our readers. It is a febrile affection, resembling continued fever, caused by feeding upon pork infested by the trichina spiralis. That parasite, thus introduced into the intestines, propagates there largely, and migrates in vast numbers thence to the muscles, where they become encapsulated and prove a source of great disturbance to the economy.]

Three disgusting and dangerous diseases in man thus owe their origin to the ingestion of the flesh of the pig, viz., tapeworm, hydatids, and trichina.

A very elaborate account of our present state of knowledge regarding the *trichina spiralis* has lately been communicated to the *Société de Biologie* by M. DAVAINE.

Passing by the first portion of his memoir, which is devoted to the history of the discovery of the parasite and a description of its characters, which have been fully detailed by Dr. Keller, we shall quote what he says in regard to the phenomena they give rise to, and which he has observed in numerous experiments instituted by him on various animals:—

“When trichinæ exist in great numbers, their presence in the muscles or intestines produces severe and sometimes fatal symptoms. These symptoms may, in animals experimented on, present three successive more or less distinct phases.

“The first phase is characterized by intestinal disorder, produced by the development of the larvæ in large numbers and their adhesion to the mucous membrane of the intestine. In this stage, M. Davaine has seen rabbits die with intense diarrhœa; one of two cats which he fed with trichinized meat had diarrhœa for at least a fortnight, but survived. Of five or six rats fed on a similar diet, one only, which was pregnant, died of diarrhœa, after abortion on the eighth day. According to M. Leuckart, the passage of the embryos of trichinæ through the intestinal walls sometimes produces peritonitis. This intestinal phase often becomes blended with the next; it may be relieved by the expulsion of the worms by means of the diarrhœa; or may cease with the natural death of the worms.

“The second stage presents general symptoms—muscular pains, etc. These phenomena are dependent on the introduction of the trichinæ into the muscles; they rapidly acquire their maximum intensity, and have not a long duration. The appearance and duration of this stage are in complete relation with the development and length of sojourn of the trichinæ in the intestines; in fact, in this entozoon oviposition is not slow and of long duration as in many nematoid worms; the genital tube is rapidly formed, and the ova in its whole length are developed almost simultaneously, so that the embryos, arriving soon at maturity, are at once thrown out in large number into the intestine, and the mother trichina dies exhausted. If it be remembered that the embryos do not escape before the eighth day, that a certain number of days are required for their arrival in the muscles, and that new ones are not produced after six or seven weeks, it will be understood that the first symptoms of this stage can scarcely appear until the end of a fortnight after ingestion of the diseased food, that they must continue four or five weeks, and that after this they may disappear. This course of events is observed in animals; and in man, the symptoms of this stage have shown themselves and become aggravated from the third to the sixth week after infection. Most animals die during this stage; rabbits rarely survive; rats, on the contrary, generally resist it.

“If the animals do not die of the general symptoms or local disturbances proper to these two stages, the inflammatory symptoms cease, respiration becomes natural, and order is re-established. But, in some cases, the number of cysts formed in the muscles are sufficiently great to impede the proper exercise of their functions, and hence arise general debility, a kind of consumption which persists or becomes aggravated, and the animal dies of marasmus. M. Davaine has noticed this in rabbits, but especially in a rat.

“Recovery from these phases of trichinal infection may be apparently perfect. A rabbit, which M. Davaine kept during five months, became large and fat, although it had a large number of trichinæ in its muscles; a rat which had had these entozoa in considerable numbers during six months was to all appearance in good health. Hence he concludes that the trichinæ produce symptoms only when they are in the intestinal canal and when they are entering the muscles.

Having become lodged in their cysts among the muscular fibres, they may remain harmless for an indefinite time. In every case except one, down to 1859, trichinæ have been found in the bodies of persons who have died of disease (generally chronic) or by accident, or in the dissecting-room in bodies regarding which the previous history could not be obtained. In most cases, the cysts contained a cretaceous or fatty deposit, showing that they had probably existed several years.

"The observations which have been made on the human subject in regard to the symptoms caused by trichinæ show that they belong, as in animals, to the initial period of infection. They consist in intestinal and muscular lesions; the latter coincide with the entrance of the parasite into the muscles, and are truly traumatic. In Zenker's case, the intestinal symptoms were swelling and pain; in a case described by Friedrich, diarrhœa was present. In all cases, the most remarkable symptoms were violent rheumatoid pains in the muscles, not in the joints, which were considerably aggravated by attempts to extend the half bent limbs. The other symptoms have been variable, but have had a strong resemblance to those of typhoid fever. In several cases there has been abundant sweating, and in one there was a very remarkable miliary and furuncular eruption. The animal heat was diminished in Friedrich's case; and in those observed in Voigtland by Freytag, the temperature never exceeded 102° Fahr.

"The progress, duration, and severity of the disease in man are in relation to the number of trichinæ taken into the digestive canal. Of sixteen patients observed at Plauen by Drs. Boehler and Kœnigsdœrffer, eight, who were moderately affected, recovered in a month; four, more severely diseased, were ill two months; of four others, one died with ascites and colliquative diarrhœa at the end of two months, and three recovered slowly at the end of three or four months. Recovery does not imply the death of the trichinæ; it follows their inclosure in cysts.

"The diagnosis of trichinal infection has several times been made in the living human subject by removing a portion of muscle. M. Davaine thinks it probable that, during the first six or eight weeks of the disease, the diagnosis may be confirmed by searching for adult trichinæ in the alvine evacuations, produced naturally or by means of a purgative."

*A very remarkable case of Trichinal Infection* is related (*Deutsche Klinik*) by Professor Langenbeck:—

While removing a cancrroid growth from the neck of a patient arrived from the country, Dr. Langenbeck remarked that the platysma presented an unusual appearance. Microscopic examination showed that it contained an immense number of dead trichinæ, contained in calcified capsules. Inquiry was made as to the circumstances under which the immigration had probably occurred, and the following was the result: In 1845, a commission composed of eight persons went to a town in the district of Lansitz to inspect the schools. A collation composed of ham, sausages, cheese, roast veal, and white wine was served to the commission; only seven of the members partook of it, the eighth was absent at the time, and only took a glass of red wine at the dessert. Three or four days afterwards the seven who had partaken of refreshments were seized with intense diarrhœa, pain in the neck, and œdema of the face and extremities. In four the attack proved fatal; and the three others, including the individual on whom M. Langenbeck had operated, only recovered after a tedious illness. Rumours of poisoning spread about, as may readily be imagined. An investigation was ordered, but the result was negative; the public, however, did not so readily get quit of their suspicions, and the landlord of the hotel where the collation had been served soon found himself without customers, and was obliged to emigrate.

It is a question well worthy the attention of medical jurists whether many cases of death from suspected poisoning, in which no poisonous matter could be detected in the body, may not be due to trichina disease.

It is stated in the *American Medical Times*, Feb. 20th, 1864, that during the past week an instance of the poisoning of a whole family, and the death of one member, caused by eating a ham, occurred in the city of New York. The case was investigated by Dr. Schnetter, who found the ham full of the trichina spiralis, and did not hesitate to attribute the poisoning to this parasite.

In the summary of this Number will be found some further account of this disease.—EDITOR.]

ART. VI.—*On the Major Amputations for Injuries in both Civil and Military Practice.* By JOHN A. LIDELL, M. D., Surg. U. S. Vols., in charge of Stanton Hospital, Washington, D. C.

AFTER nearly three years' experience in war, conducted on a very large scale—perhaps, indeed, the largest of modern times—the opinion of the military surgeons of this country is, I believe, unanimous in favour of primary amputation; provided, of course, that amputation be at all required. In this respect their views accord with those of nearly all surgeons who have practised with armies in modern times. Indeed, the experience gathered in each succeeding war has served to deepen the general conviction of the profession, with regard to the advantages of primary over secondary amputations, for wounds inflicted by the missiles of war. We think that John Hunter was widely mistaken when he wrote as follows: "It has been found that few did well who had their limbs cut off on the field of battle, while a much greater proportion have done well, in similar cases, who were allowed to go on till the first inflammation was over, and underwent amputation afterwards."<sup>1</sup> Contrariwise to this assertion of the superiority of secondary over primary operations, made by that great man, a very large number, wounded in the present war, have done well, who had their limbs cut off on the field of battle, while, on the other hand, a considerable number, wounded not so severely as those who underwent primary amputation,

<sup>1</sup> On this point Begin remarks: "This doctrine, which was that of Bilguer, of Faure, and of all the partisans of delayed amputation, has been successfully combated by the general experience of military surgeons. I would not have given it so much attention if, in the communications to which you have listened, there were not some tendency to extol it anew."—*Bulletin de l'Académie de Médecine*, t. xiv. p. 105, 1848.

Hennin also, speaking of the propriety of primary amputation, says: "The fact is established as firmly as any other in surgery; and, perhaps, in the whole range of the science, there is not one point where opinions have so little varied among English practitioners, from Wiseman downwards."—*Principles of Military Surgery*, p. 44, 3d ed., London, 1829.

have done badly, being allowed to go on till the first inflammation should be over; cases, too, that would have been likely to recover if amputation had been seasonably performed, both on account of the favourable character of the injury itself, and on account of the youth and constitutional vigour of the patient. All surgeons much experienced in the after-treatment of the wounded brought from the numerous battle fields of this war will, I doubt not, indorse the correctness of this statement. Furthermore, as having a bearing upon the subject under consideration, I can safely say, that I have never found a patient doing badly on account of having suffered a primary operation *per se*, while, on the other hand, I can with equal safety say that we have received from every battle, whose wounded have been sent to Stanton Hospital for after-treatment, some patients who were entirely past recovery at the time of reaching us, and that, too, because primary amputation had not been resorted to for them. I therefore firmly believe that many lives have been needlessly sacrificed during the course of this war for want of amputation seasonably performed, and that the medical officers serving with our armies in the field to-day are open to censure, as a body, not for operating too much, but for operating too little on the field of battle. A strong bias towards conservatism in surgery may lead some to misjudge with regard to the strength of the reparative powers of the system in a case of injury, and thus may induce them to make an attempt to save a limb, which does not meet with success, and too often, likewise, proves fatal to the patient. It is for this reason, that some military surgeons in high repute have recommended, that even in doubtful cases, primary amputation should always be practised; and it now seems to me that a true conservatism in surgery—a conservatism which makes the preservation of the patient's life paramount to the preservation of a limb—fully sanctions the wisdom of this recommendation. I know well, that it does not accord with the modern ideas of conservatism, to condemn certain wounded limbs to be cut off without a trial to save them, and I am also fully aware how difficult it is to become persuaded of the necessity of such operation; but the unwilling conversion will surely be made, after witnessing the progress and termination of a number of these cases, wherein amputation was considered of doubtful propriety at the outset, and it will then as surely be realized, that this conversion has been effected at the expense of human life. (Vide *Macleod's Notes*.) It is probably on this account that, a war being continued through a number of years, the effects of a false conservatism become less manifest with the lapse of time, in the treatment of the class of the wounded now under consideration. This, indeed, is one of the surgical lessons which the history of every war has taught in

<sup>1</sup> Hennen says: "I am well convinced *the sum of human misery will be most materially lessened by permitting no ambiguous case to be submitted to the trial of preserving the limb.*"—*Principles of Military Surgery*, p. 114, London, 1829.

The Italics are in the original.

recent times ; and we in this country, I fear, will be compelled to learn it over again, notwithstanding the pointed admonitions on the subject, given by the military surgeons who practised in the wars of the first Napoleon, and more recently by those who served in the Crimean campaigns.<sup>1</sup>

But, on the other hand, there is a numerous class of cases in which the principle directing the practice of our military surgeons does not appear to be obscured by any doubt. This generally accepted principle is, that if a limb be injured by a missile of war, or any other species of violence, in such a way that its preservation is *clearly* incompatible with the preservation of life, whether immediately or remotely in point of time, the operation of cutting it off should not be postponed ; for, in such a case, every hour's delay will by so much diminish the patient's chance of recovery.

It may happen that, primary amputation having not been performed, when the period of inflammatory reaction has begun, the wounded parts will be invaded by an uncontrollable inflammation, which, extending rapidly to the whole limb, shall produce great swelling with a strong tendency to suppuration of a diffuse character, together with such a morbid state of all the tissues of the limb (diffuse cellulitis), associated with great constitutional disturbance and depression of the vital powers (irritative fever), that successful amputation can no longer be performed, and the patient must be left to die without effectual surgical interference ; and that, too, because such interference has been unwisely postponed.

<sup>1</sup> At the meeting of the Academy, September 26, 1848, M. Begin said, towards the close of the discussion : "It is not the first time that military surgeons have been accused of amputating too freely ; indeed, this impression is always produced by the first glance at their practice. All of them, however, have commenced by wishing to be conservative ; but according as experience educates them, and as their observation extends, they amputate more, and have become convinced they are right in so doing. In reply to what has been said to the Academy by some of my distinguished colleagues, I will say, that at the outset of my career I amputated less than I did towards the close of my service as surgeon-in-chief of great establishments. There are certain cases, very often exaggerated, of wounded who pretend to have preserved limbs which the surgeon wished to remove ; I have too frequently been present at the miserable death of subjects who refused the operation, or who, it was believed, might avoid it. The small number of the first, who boasted loudly, cannot compensate for the large number of the second, which caused me much sorrow. And again, how often are not these retained members a troublesome burden to those who carry them ? Ask the surgeons of the Invalides if they are not each year solicited by some of these old soldiers, to relieve them of parts which are a burden to them, and which cause them inconvenience or incessant pain.

"I would think it a great misfortune if our military surgeons should allow themselves to be seduced by some of the assertions which you have heard. Such forgetfulness of the experience of their most illustrious predecessors would certainly entail the loss of many men which the art, practised with a more reasonable energy, might have saved."—*Bulletin de l'Académie de Médecine*, t. xiv. pp. 107, 108.

Such, indeed, is a brief account of what happened in the two following cases, which, therefore, afford good illustrations of the untoward consequences which may speedily follow delayed amputation.

CASE I. Private A. C., Co. K, 6th Maine Vols., a robust looking man, 21 years old, was admitted to Stanton Hospital Nov. 9, 1863. He had been wounded on the seventh, two days before, in battle at Rappahannock Station.

On examination it was found that the bullet (a conical one) entered the front of the left thigh about three inches above the upper margin of the patella, and passing backwards, fractured the femur in its lower third with much comminution, and lodged in the neighbourhood; the thigh was much swelled, the tumefaction extending nearly to the groin; the knee-joint was much distended by effusion, and very painful; he had great constitutional disturbance, a hot skin, frequent and feeble pulse, dry brown tongue, and was very restless; in short, he had all the symptoms of a low grade of irritative fever, with synovitis of the knee-joint, and widely diffused inflammation of the thigh. A water-dressing was applied; anodynes, alcoholic stimulants, and suitable nutriment were administered; and the limb was propped up with long sand-bags to keep it steady.

Nov. 10. He exhibited no improvement, and his condition remained but little changed till—

14th. Wound now discharging freely a thin, fetid, dark-coloured pus; swelling extended downwards to the leg; thigh greatly swollen, and dark-red in colour; sordes on lips and teeth. On the following days he continued to grow worse, and on—

18th. The limb was attacked with gangrene; a number of large blebs, containing a dark-coloured serum, appeared on the thigh, and its surface generally presented a dark-brown mottled appearance; in the morning there was hemorrhage (non-arterial) from the wound, to the extent of one or two ounces, but it stopped without difficulty; he had subsultus tendinum and low muttering delirium; he continued to sink, and died Nov. 20.

The *autopsy* showed extensive comminution of the lower third of the femur, pus widely diffused among the muscles of the thigh, together with a large abscess behind the bone, containing the bullet, and communicating with the cavity of the inflamed joint.

This was a favourable case for primary amputation. The limb could have been removed, without difficulty, as low down as the last part of the middle third of the thigh, if operated on soon after the infliction of the wound. When he came to the hospital, however, although but two days had elapsed, it was too late for art to interfere in his behalf. Even if his general condition had warranted it, if typhoid symptoms of a grave character had not been present, the swelling and intense inflammatory action, which involved the thigh up to the groin, would have precluded the performance of successful amputation.

CASE II. Private J. R., Co. F, 5th Wisconsin Vols., a young man of 18, and of good constitution, was wounded in battle at Rappahannock Station, Nov. 7th, and brought to Stanton Hospital two days afterwards (Nov. 9th), having gunshot fracture of the left femur in its lower third.



The bullet (a conoidal one) passed through the limb from before backwards and somewhat inwards, about five inches above the knee-joint.

When admitted to hospital he was feverish, restless, and very feeble; the whole thigh, together with the knee, was greatly swelled and dark coloured; his pulse was very weak, and there was manifestly no prospect whatever of his recovery. Treatment: anodynes, free stimulation with alcoholics, along with beef-tea and any other nutriment he would take. He died on the morning of the 11th.

The *autopsy* showed that the swelling of the thigh was occasioned mainly by a serous infiltration, having an inflammatory origin, that even the muscular tissue was invaded by this infiltration, that the femur was broken in the lower third with much splintering, and that the end of one splinter was driven into the cavity of the knee-joint. He had succumbed before suppuration could be set up in the inflamed thigh.

This case illustrates still more strongly than the last the exceeding danger of delayed amputation, when the injury is of such a character as to demand that operation. The inflammatory action set up by thrusting a splinter of bone into the knee-joint and allowing it to remain there, and by pricking and piercing the muscles with sharp osseous fragments was so intense as to rapidly pervade not only the joint but also the subcutaneous with the inter-muscular cellular tissue, and even the muscles themselves throughout the thigh, as was shown at the autopsy. By amputation, seasonably performed, this thigh could have readily been removed in the middle third, and then the young man would have had a reasonable prospect of recovery.

The first advantage, then, of primary over secondary amputation, is that by the former procedure, a reasonable chance is afforded of saving the lives of a numerous class of the wounded, who would not survive till secondary amputation could be performed.

Again, if amputation be postponed from the primary to the secondary period, *purulent absorption* may occur in the meantime, and either put all operative proceedings out of the question, or render any operation unsuccessful that may be performed; and this, too, in cases which, if operated on primarily, would be likely to have a good result. This statement is intended to apply only to such instances of wounds as are not likely to recover without the excision of the injured member. Other cases do not come within its scope; and the cutting off of wounded limbs in general is not recommended as a precautionary measure against purulent infection, *per se*; but the fact is fully recognized, that when a limb is so injured that its preservation is incompatible with the preservation of life, there is great risk of the development of pyæmia from it. On this account it is that patients are more likely to recover by the primary than the secondary operation.

The following is a case in point:—

CASE III. Private J. S. S., Co. K, 2d New Jersey Vols., was wounded at the battle of Chancellorsville, May 2d, 1863, by a musket-shot (conical), which, entering the outer side of the sole of the left foot, passed through

the said foot in a direction inwards and a little upwards, fracturing the tarsus; thence it continued its course to the right, impinging against the right ankle, shattering the lower end of the tibia and opening the ankle-joint; thence it passed upwards behind the muscles of the calf, where it lodged.

He was brought to Stanton Hospital six days afterwards.

*May 8.* At this time the joint (right ankle) was inflamed and considerably swelled; bullet not extracted; general condition not unfavourable; the ice dressing was applied to the wounds. So long a time had elapsed since the infliction of the wounds, that we determined to follow the course of events still further, and not to amputate, if possible, till, in the words of John Hunter, "all circumstances favoured the operation."

He went on without much change in his condition till—

*15th.* When he had a chill, and an abscess was noticed to be forming in the calf. Prescribed quiniæ sulph. gr. v, pulv. opii gr. j, every six hours.

*16th.* Inflammation and swelling extending up the leg from the ankle; had moderate constitutional disturbance; countenance slightly tinged sallow; determined to amputate immediately; accordingly the leg was removed at the place of election by the posterior flap operation; patient under the influence of sulphuric ether; he did not rally well from the shock of operation. That night he exhibited great nervous agitation, with a feeble and irritable pulse, for which stimulants and anodynes were administered.

*17th.* Had passed a restless night; nervous agitation continued; in the afternoon he had another chill, followed by fever, sweats, and great prostration. Administered tinct. ferri muriat., quiniæ sulph. and alcoholic stimulants.

*18th and 19th.* Had rigors, fever, and sweats, at irregular intervals; his skin and conjunctiva presented a yellow appearance; had some delirium.

*20th.* He gradually sank and died of pyæmia.

The termination of this case showed that purulent infection, denoted by rigors, sweats, debility, and a sallow tinge of the complexion, had actually made its appearance before the operation was performed. At that time we hoped that the chill, which had taken place on the day before the amputation (*May 15th*), was malarial in character, but the sallow tinge of the countenance, even then, led me to suspect what afterwards happened. Still, under the circumstances, there was but little to be done unless amputation should be performed. Even on the supposition that pyæmia had commenced it was worth while to ascertain, by experiment, whether the disease could be arrested by the removal of the suppurating limb.

This case shows further, that secondary operations also should not be unnecessarily delayed, for such delay exposes the patient to increased peril from intercurrent disorders. And, indeed, the remark may here be made that the surgeon will never be sorry for the non-postponement of any necessary operation, other things being equal. It is possible, that if we had operated on this patient soon after his admission to the hospital, his life might have been saved; but at the same time it is certain, that if the same operation had been performed before the wounds had become inflamed, the accomplishment of such a result would have been highly probable.

A *second advantage*, therefore, of *primary over secondary amputation* is, that it lessens the danger of the intercurrent of purulent absorption, which, *per se*, would prevent the performance of any operation. Furthermore, cases allowed to go on to the secondary period are in constant peril from purulent absorption all this while, and subsequent to the amputation they are in at least as much danger from this cause as those undergoing the primary operation, so that from this point of view, also, the advantage rests with primary amputation.

CASE IV. F. H., Co. G, 14th Indiana Vols., aged about 35, and of robust make, was brought to Stanton Hospital, Dec. 26, 1862, along with many other cases of severe wounds, inflicted at the battle of Fredericksburg, Dec. 13, 1862. He had been struck in the right knee by a minie ball, which opened the joint very freely, and shattered the lower end of the femur extensively, breaking also the upper end of the patella.

When admitted to hospital his countenance was pale, his pulse feeble, he evidently was much debilitated, and complained of a great deal of pain in the injured parts, which were swollen and inflamed. The broken end of the femur protruded through the wound. This had probably occurred from carelessness in the transportation to hospital. Pus flowed freely from the wound. On introducing the finger, extensive comminution was detected, and we wondered that primary amputation had not been performed, as the preservation of such a limb must have appeared improbable from the outset.

The next day, Saturday, Dec. 27, two weeks after the injury, the thigh was amputated at the lower third, by the flap method, the patient being etherized. He lost but little blood, and bore the operation well.

Dec. 28. Patient feeble, but his case looks as favourable as can be expected. Treatment, free stimulation and beef-tea.

29th. Patient's condition continues rather favourable.

30th. Patient sinking in spite of stimulants and supporting treatment generally.

31st. Died of exhaustion.

Primary amputation was clearly indicated in this case. The operation could have been performed without difficulty, in the lower third of the thigh, with a good prospect of recovery, for he was more vigorous, in point of constitution, than the average of soldiers. On the other hand, the conservative method of treatment offered but a small chance for a successful issue; for, taking even the most favourable view of the case, the fragments of the broken condyles of the femur could have been cast off only after tedious and profuse suppuration, which would have destroyed the patient by exhaustion, if pyæmia should not intervene to bring the scene of suffering to a speedier close. Moreover, when it became necessary to convey the patient to a general hospital, if amputation had been previously performed, the lower end of the broken femur could not have been thrust down past its shattered condyles, and through the wound at the knee, from the accidents of transportation or from other causes. This, alone, is a circumstance of great importance to a case of this or any similar

kind of injury, for, while the patient's safety is promoted, he is also enabled to reach a general hospital in comparative comfort.

Again, the term *primary* is restricted to operations performed before the commencement of inflammation of the injured parts, and the term *secondary* to operations performed after these parts have become inflamed. The term *intermediate* also is sometimes employed. It refers to operations performed after the accession of inflammation and before suppuration is established. The distinction upon which it is founded, however, appears to be not essential in character, and therefore is of no practical importance, and, on this account, we shall continue to employ only the terms *primary* and *secondary*.

Now, it is apparent at a glance that a limb can be amputated at a place more remote from the trunk, before the wounded parts have become inflamed, than afterwards. And this is a matter of importance, because observation has abundantly shown, that the more remotely from the body a limb is cut off, the greater is the likelihood of a favourable issue. Furthermore, after a wounded limb has become inflamed, it may become necessary to go above the next articulation in order to amputate; whereas, if the operation had been performed before inflammation set in, the articulation might have been saved. Thus, in gunshot fracture of the leg with much comminution and opening the ankle-joint, amputation can nearly always be performed below the knee if done soon after the infliction of the injury, but if the operation be postponed till after the leg has become inflamed, then it may become necessary to go above the knee and amputate the thigh, and in this way, by delaying the operation, the patient loses not only a valuable articulation, but has his life exposed to additional peril; for all experience has shown that amputation of the thigh, especially for injury, is much more fatal than amputation of the leg.

For this important class of injuries, then, the primary operation obviously presents very great advantages over the secondary one, and the following case illustrates this view:—

CASE V. Lieut. C. H. D., Co. K, 26th Wisconsin Vols., aged 20, and of naturally fine physique, was wounded at the battle of Chancellorville, May 2, 1863, by a musket ball (conoidal), which penetrated the left leg about four inches above the internal malleolus, fractured the tibia; and, passing downward, fractured the astragalus and calcaneum, emerging finally through the sole of the foot. He was treated in the field hospital for some time, but when the army moved he was brought to Stanton Hospital, June 15, 1863.

The foot and leg were then much swelled, the tumefaction extending up to the knee; the ankle joint was open, and the wounds were suppurating freely. He was also thin and pale. The water dressing was applied, and a nutritious diet ordered.

June 18. He was attacked with fever ushered in by a chill.

19th. The fever continued.

20th. The foot and ankle are greatly swelled; the skin presents an ery-

sipelatous blush; the superficial lymphatics of the leg and thigh are inflamed; they feel like hard cords, and the skin over them is streaked dark red in colour nearly to the groin; free incisions were made in the foot to relieve tension; cold applications to the leg and thigh.

21st. The lymphatic ganglia of the groin were swelled and painful. Prescribed ungt. hydrarg. et camphor.

24th. The inflammation of the lymphatics had subsided, and he was much better in every respect.

26th. The swelling of the foot and leg again increased, and

27th. The thigh was amputated at the lower third by the circular method, the leg being so much swelled and inflamed that the operation could not be performed below the knee. There was troublesome oozing of blood from the surface of the stump, which was controlled by the application of persulphate of iron. The stump was left open to granulate from the bottom and to prevent any accumulation of pus, and he slowly recovered.

In the case of this officer, if the primary operation had been employed, the leg could have been cut off at or near its lower third; the result would almost certainly have been favourable, for the fatality of amputations performed at that place in young and healthy subjects is very small, especially with the superior after-care which an officer is able to command; he would have saved his knee-joint, which, by the way, is one of the most useful in the whole body, invaluable, we might say, for using an artificial limb; he would have escaped the terrible peril to which his life was for a long time exposed from purulent absorption; and he would also have escaped a confinement to bed which lasted for many months.

Guthrie says:—

“When an amputation is deferred to the secondary period, a joint is often lost. A leg which might have been cut off below the knee, in the first instance, is frequently obliged to be removed above the knee, when done in the second.”  
—*Commentaries on Military Surgery*, p. 59.

Again, *primary amputation is more advantageous than secondary amputation, because the mortality following it is very considerably less than that following secondary amputation.* This has been the chief reason why in time past military surgeons have almost uniformly preferred the primary to the secondary operation, in the treatment of the casualties of war. A marked difference in the ratio of mortality between the primary and the secondary method, and in favour of the former, has been observed in different wars, in different countries, and in different climates. Thus, according to MACLEOD, the mortality in the British army in the Crimea was, for primary amputations, 37 per cent.; for secondary amputations, 60 per cent.; in the British Naval Brigade 31 per cent. for primary, and 50 per cent. for secondary operations. Among the French at Constantinople 32 per cent. for primary amputations, and 41 per cent. for secondary ones. At Toulouse, in 1814, 20.8 per cent. for primary, and 43 per cent. for secondary operations. Among the British at New Orleans, in 1815, 15.5 per cent. for primary, and 71.4 per cent. for secondary amputations; and after Waterloo

41.4 per cent. for primary, and 57.7 per cent. for secondary operations. The table of major amputations for gunshot wounds compiled by MACLEOD after excluding from it all extravagant data, exhibits an aggregate of 1047 cases of primary amputation and 374 deaths, being a mortality of 35.7 per cent.; also an aggregate of 594 cases of secondary amputation and 314 deaths, being a mortality of 52.8 per cent.

According to Baudens, in 345 primary amputations treated at the Hospital Guhlène during the Crimean war, there were 137 deaths, which gives as a ratio of mortality 39.7 per cent.; and in 149 secondary operations performed at the same hospital there were 77 deaths, which gives as a ratio of mortality 51.6 per cent.

It is also stated that the Russians lost one-third of their primary amputations, and two-thirds of their secondary ones, in the Crimean war.

There have been treated at the Stanton Hospital, Washington, D. C., under my direction, 61 cases of primary amputation, of which 18 died, giving as a ratio of mortality 29.5 per cent. Of these 61 amputations, 18 were of the thigh, with ten deaths, the ratio of mortality being 55.5 per cent.; 25 were of the leg, with four deaths, and a ratio of mortality of 16 per cent.; 2 were at the knee, of which one died, the ratio of mortality being 50 per cent.; 12 were of the arm, with three deaths, and a mortality of 25 per cent.; 2 were of the forearm, of which neither died; 1 at the ankle-joint, and one through the tarsus, both of which were successful. Total, 61 cases and 18 deaths; ratio of mortality 29.5 per cent.

At the same hospital 12 secondary amputations have been performed, of which 6 proved fatal, giving a mortality of 50 per cent. Of these operations 7 were through the thigh, with 3 deaths, and a ratio of mortality of 42.8 per cent.; 4 were through the leg, with 2 deaths, and a ratio of 50 per cent.; 1 through the left arm and right forearm (double operation), which proved fatal, giving a ratio of mortality of 100 per cent. Total, 12 cases of secondary operation, and six deaths; ratio of mortality 50 per cent.

It will thus be seen that our experience agrees, in the main, with that of military surgeons of other times and at other places, and that here, as well as elsewhere, the fatality of the greater amputations, taken together, is considerably less when performed primarily than when performed secondarily for the casualties of war.

Among civil surgeons, however, the question of the relative superiority of primary over secondary operations appears to be still unsettled. They appear to entertain some doubt, with regard to the comparative mortality of primary and secondary amputations, performed for the injuries met with in civil practice. The opinion of the profession on this subject seems never to have settled down into a fixed belief. Some have been inclined to think that primary operations are more fatal than secondary ones in civil life. Mr. Erichsen says, that "in civil practice the mortality after primary

amputations somewhat exceeds that following secondary operations."<sup>1</sup> In another place he asks, "To what is this difference between the results of primary and secondary amputations in civil and military practice owing? Why are the results of amputation reversed in civil and military practice? Why are primary amputations more fatal in civil, and secondary in military practice?"<sup>2</sup> He then proceeds to answer the question, by attributing the difference to a deficiency in moral stamina on the part of the civilian, as compared with the soldier, to withstand the shock of the injury. This answer appears to me unsatisfactory, for, admitting the superiority of the soldier in point of morale, there is, on the other hand, a superiority on the part of the civilian in point of physical condition at the time of injury. He is not broken down with the hardships, nor worn out with the long marches, nor badly nourished with the unvaried, and sometimes scanty diet, incident to an active campaign in the field. He is not exhausted with the labours and vigils which the soldier is compelled to undergo in the trenches during the progress of a siege. In these respects the injured civilian has a great advantage over the wounded soldier, enough, I am inclined to believe, to fully counterbalance the deficient morale. I can see no reason, therefore, why the results of this class of operations should differ materially in civil and in military practice; and, if I read civil statistics aright, the results are essentially the same in both civil and military practice.

If we examine closely the statistics to which Mr. Erichsen refers in the paragraph heretofore quoted,<sup>3</sup> we shall find that of the twenty-seven primary amputations performed in University College Hospital only eight died, which gives as a ratio of mortality 29.6 per cent., and that of twenty-six cases of secondary amputation eleven died, which affords as a ratio of mortality 42.3 per cent. These results do not differ much from those of similar operations occurring in the British Naval Brigade, as reported by Macleod, viz.: 31 per cent. for primary, and 50 per cent. for secondary operations.

Again, if we take the cases of amputation for injury occurring in the practice of various surgeons, as tabulated by Mr. Erichsen, and add them all together, we shall obtain a total of 382 cases of primary amputation with 132 deaths, which gives a mortality of 34.5 per cent.; we shall also obtain a total of 126 cases of secondary amputation with 71 deaths, and a ratio of mortality of 56.3 per cent. These results present a striking similarity to those furnished by the aggregates in Macleod's table, "showing the mortality following the greater amputations in all parts for gunshot wounds,"<sup>4</sup> viz.: 35.7 per cent. for primary, and 52.8 per cent. for secondary amputations, as already quoted in this paper.

<sup>1</sup> Erichsen's Surgery, p. 45, American edition, 1860.

<sup>2</sup> Op. cit., p. 46.

<sup>3</sup> Erichsen's Surgery, pp. 45 and 46, American edition, 1860.

<sup>4</sup> Notes on the Surgery of the Crimean War, p. 366, American edition, 1862.

The reader will observe that these results are afforded by an examination of the tables furnished by Mr. Erichsen himself. If now we turn to Macleod's table showing the mortality following the greater amputations for injuries occurring in civil life,<sup>1</sup> and embracing the results of practice in several civil hospitals, we shall find a total of 608 cases of primary amputation and 215 deaths, which affords as a ratio of mortality 35.3 per cent.; also a total of 224 cases of secondary amputation and 137 deaths, the ratio of mortality being 61 per cent. These results do not differ much from those furnished by Mr. Erichsen's tables and from those afforded by military practice.

If we turn to American statistics, we find additional proof that primary amputations are much less fatal than secondary ones in civil practice. Norris states<sup>2</sup> that, prior to 1850, 115 primary amputations were performed at the Pennsylvania Hospital, of which 27 died, giving as a ratio of mortality 23.4 per cent. He also states that during the same period 41 secondary amputations were performed at the same hospital, of which 16 died, giving as a ratio of mortality 39 per cent. These were all major operations.

Now, giving due weight to all these statistics, we cannot avoid the conclusion, I think, that primary amputations are much less fatal than secondary ones in civil as well as in military practice; and, furthermore, that the ratio of mortality for similar operations does not differ materially in civil and military practice.

I would not be so much inclined to criticize the statement of Mr. Erichsen, already quoted, if that statement was not likely to lead to erroneous practice, by inducing surgeons to delay to operate, in case of injury requiring amputation, from the primary to the secondary period, under the mistaken idea that the patient's chance of recovery would be improved by so doing.

In the preceding pages we have seen that primary amputations are more advantageous than secondary ones, because, in the *first place*, they afford a chance of recovery to a numerous class of persons suffering from gunshot wounds or other injuries, who would not survive the inflammatory stage together with its intercurrent disorders, until such time as the secondary amputation could be performed; and because, in the *second place*, primary operations are a great deal less fatal, *per se*, than secondary operations. Such being the facts, it follows as a necessary consequence, that the *proper time to amputate*, in all cases of wounds or injuries demanding that operation, is during the primary period, *i. e.*, previous to the commencement of inflammation in the wounded parts, or within a period of twenty-four or thirty-six hours after the infliction of the injury.

<sup>1</sup> Op. cit., p. 367.

<sup>2</sup> American Journal Medical Sciences, vol. xxviii., July, 1854. Statistics of Amputations at Pennsylvania Hospital.



Concerning *the time to operate*, it should also be stated, that in very many cases there is an interval of time, which, however, varies in length in different cases according to the severity of the injury and the constitution, temperament, etc., of the patient, that elapses between the infliction of the injury and the occurrence of that depression of the forces of the system which is denominated "shock." This interval preceding "shock" is present in nearly all cases of severe injury, except those wherein either sudden and profuse hemorrhage occurs, or the great nervous centres suffer from concussion at the same time. If, however, the original injury be complicated by profuse bleeding or with concussion, then the symptoms of "shock" are developed without delay. But it is pretty certainly true, that in a large majority of the cases injured in such a way as to demand amputation, the symptoms of "shock" do not come on immediately. If now amputation could always be performed in such cases in this interval between the infliction of the wound or other injury and the development of "shock," I have no doubt that the prospect of recovery would be greatly improved thereby, more especially if the patient should be under the influence of an anæsthetic while undergoing the operation; *for, by operating at this particular time, aided by ether or chloroform, the "shock" would be either entirely prevented or considerably moderated in severity.* The rationale of this obviation of "shock" through the intervention of art is probably as follows: the "shock" in these cases is the joint product of at least two elements which are entirely distinct from the concussion of the nervous centres or the loss of blood. These elements are, *first*, depression growing out of the sympathetic relations of the system at large with the laceration of the muscles and the nerves and the splintering of the bones with the sharp fragments driven, perhaps, into the surrounding soft parts, or even into a neighbouring joint; and *second*, depression growing out of the mental emotions, such as the horror of the mutilation occasioned by the injury itself, the terror at impending death, the dread of the operation, etc. Now, by cutting off the injured limb immediately and before the supervention of "shock," the tendency to the development of "shock" is diminished, *first*, by the fact that the torn and jagged wound of injury has been changed into the simple incised wound of operation; and, *second*, by administering an anæsthetic, the excited emotions are put to sleep, and when the patient awakens he finds that the dreaded operation has been performed; he believes himself comparatively safe from death, and the buoyancy of hope takes the place of the depression of despair. Immediate amputation would be likely to prove most serviceable in cases where the bleeding is excessive, or where the amount of injury and mutilation from injury happen to be great, for in such cases the amount of "shock" also is very great, and the principal danger is, that, after profound "shock" has once been established, the patient cannot be made to rally so as to undergo a successful operation afterwards. I therefore believe that *immediate* amputation ought to be

practised in all cases demanding the operation, which may come under the surgeon's eye prior to the development of "shock," more especially in cases where there is copious hemorrhage, or, again, in cases where a limb has been torn off by a cannon shot, or by the explosion of a shell, or in civil practice, crushed by a railway carriage, or torn off by any kind of machinery. Immediate amputation, for the most part, cannot be practised during a campaign in the field for obvious reasons, but the stationary condition of troops during sieges, and on shipboard in naval warfare, would afford many opportunities of employing it; and I believe it to be the duty of the medical officers serving in our fleets and with our troops conducting sieges on land, to make the needful preparations for performing as many *immediate* amputations in cases requiring that operation as possible.<sup>1</sup>

Again, the presence of slight or even a moderate amount of shock does not contraindicate immediate amputation; but if the shock be excessive, or even severe, then it is better to delay the operation until reaction has been fully established. In the mean time reaction should be promoted by the application of dry heat externally, and by the administration of such stimulants internally as are adapted to the degree of the shock, employing the most powerful of the diffusible stimulants, such as brandy and carbonate of ammonia, freely in the desperate cases, and the same stimulants in smaller quantity, or perhaps only wine, or even warm tea or coffee in cases of a less severe character. As soon as the reaction has been fully established, amputation should be performed without further delay, because the injured part will speedily become inflamed, and such a condition of the limb may quickly supervene as to preclude a successful operation. I have met some military surgeons of large experience in operating, who do not hesitate to amputate even while the system is a good deal depressed by

<sup>1</sup> Macleod says: "Whatever that condition is which is conventionally known as 'shock,' it seems pretty evident from the admission of all, that it is not established for some little time after the receipt of an injury—an interval which differs in duration mainly in accordance with the severity of the wound, the agency by which the injury has been caused, and probably the constitution of the sufferer. The evidence of naval surgeons, as summed up by Mr. Hutcheson, in reference to the absence of shock immediately after the receipt of a wound, must be conclusive to all unprejudiced minds; and instances were not wanting during the late war which appeared to support the same view. I know of several well-authenticated cases which occurred during the siege, in which the perfect absence of all constitutional prostration after an accident so severe as the carrying off of a limb, and the non-appearance of such shock for some considerable time after, went to prove the same position. If this precious moment could be seized at all times, and that operation performed under chloroform, which assists so much in warding off the 'embranlement' we fear, how much more successful would our results prove than under any other circumstances they ever can be."—*Notes on Surgery of the Crimean War*, p. 322, American edition, 1862.

"shock," and they entertain the belief that the patient is benefited by so doing.

These remarks are not in any way applicable to amputations performed in civil practice for disease, but to operations resulting from injuries alone, whether they occur in military or in civil life. The statement should, however, be made, before leaving the subject, that the ratio of mortality differs very much between amputations undertaken on account of disease and on account of injury; for experience and statistics concur in showing that the fatality of amputation is far less in corresponding limbs after disease than after injury. This fact is well illustrated by the record of the greater amputations of all kinds performed at University College Hospital, which has been published by Mr. Erichsen, and to which reference has already been made. That tabular statement shows, that amputations performed for injury are about twice as fatal as those performed for disease. Thus, while there were 53 amputations performed for injury, including of course both primary and secondary operations, of which 19 proved fatal, giving as a ratio of mortality 35.8 per cent., there were 121 amputations for disease, of which but 22 proved fatal, giving as a ratio of mortality only 18 per cent.

The tenor of American statistics is still more emphatic in respect to the comparative fatality of similar amputations undertaken for injury and for disease. I find 316 amputations for injury reported by Norris<sup>1</sup> as having been performed in the Pennsylvania, the New York, and the Massachusetts General Hospital, of which 106 died, the ratio of fatality being 33.5 per cent. I also found 179 amputations for disease reported as having been performed in the same hospitals, of which only 28 died, the ratio of fatality being only 15.6 per cent. According to this statement amputation for injury is rather more than twice as fatal as amputation for disease.

We see here the probable reason why civil surgeons have insensibly been led to consider the results of secondary amputations to be much more favourable than those of primary ones, commingling unconsciously their impressions of the very favourable results of operations performed for disease with those pertaining to secondary operations proper. It is scarcely necessary to intimate, after what has already been said, that these impressions, however honestly entertained, are entirely erroneous with regard to secondary amputations, while strictly true with regard to amputations for disease.

Why are amputations for disease so much less fatal than those undertaken for injuries? This is one of the most interesting questions which can be presented to the surgical pathologist. In seeking for a solution, it must be borne in mind that the morbid states, on account of which the remedy of last resort for preserving life is employed, are widely different,

<sup>1</sup> American Journal Med. Sciences, vol. xxviii., July, 1854.

I may say scarcely similar in the two cases. Thus, the *diseases* which require amputation belong, for the most part, to the bones and joints, and nearly all of them are exceedingly chronic in character. The patient has suffered for many months, and oftentimes for many years, before the progress of the disease has rendered the operation indispensable. In the mean time, his whole system has gradually become accustomed to the presence of the disease, and the reparative processes have been constantly busy in circumscribing it as much as possible, and combating its fatal tendencies. Now, if we remove the whole seat of the difficulty at once by amputation, nature accepts the deed as a precious boon. The system rallies, and a rapid convalescence immediately commences. It is in such cases that we most frequently get union by the first intention.

On the other hand, everything pertaining to amputations for injuries is in most cases exceedingly acute in character. But little time, as compared with operations for disease, elapses between the infliction of the injury and the performance of the operation which it has made necessary. There is also a depressed condition of the forces of the system, a result of the injury itself, called "shock," very frequently, indeed almost always, present. Now, "shock" alone is a not uncommon cause of death after primary amputation, and an occasional one after secondary amputation. But the mischievous effects of "shock" do not end here. Even in those who appear to rally well from the operation, the vicious effects of "shock," with its rude disturbance of the vital powers, and its consequent disturbance of the reparative forces of the system, are too often visible for some time afterwards, in the production of *sloughing of the stump, of osteitis with necrosis, of osteo-myelitis with pus in the medullary canal of the bone in the stump, and finally in the production of purulent infection and inflammation of the veins, also thrombosis, embolism, and metastatic abscesses, with the distressing train of fatal symptoms which represent pyæmia.* These are the accidents which happen most frequently to cases of amputation performed for injury; and the connection between them and the "shock" must not be overlooked. This intimate relation probably explains, in part at least, the great value of free stimulation by alcoholics, and the supporting treatment generally in the management of severe wounds and severe injuries, together with the operations rendered necessary by such wounds or injuries.

When, however, an injured limb is amputated a long time subsequent to the infliction of the injury, it will often be found that the operation has lost its *traumatic* character, and that it assimilates in point of safety and in most other respects to corresponding amputations performed for disease. The following case affords a good illustration of the correctness of this statement :—

CASE VI.—Private Frank Mullen, Co. E, 43d N. Y. Vols., aged 21 years, and of sound constitution, was wounded in battle at Fredericksburg,

Va., May 3d, 1863, by a musket ball (conoidic), which fractured both bones of the left leg at the lower third while passing through.

He was brought to Stanton Hospital three days afterwards, May 6th. His general condition was good, and it was judged expedient to attempt to save the limb without operation. Accordingly it was placed in Hodgen's splint and the water dressing was applied.

*May 9.* Wounds suppurating freely.

*June 1.* Wounds discharging a good healthy pus; appetite good; pulse normal; consolidation taking place.

*Aug 1.* The parts continued to heal nicely up to July 28th, when he fell while attempting to walk across the ward, and refractured the limb.

*2d.* Removed several pieces of bone.

*15th.* Parts œdematous; discharge thin and fetid.

*19th.* A small necrosed splinter came away; suffering in general health.

*Sept. 1.* Condition of leg about the same.

*Oct. 1.* Improvement both general and local; discharge thicker and healthier in character; removed the splint.

*Nov. 1.* Extensive necrosis of shaft of tibia; the dead bone is encased completely in an involucrum; condition fair; discharges from several openings.

*Dec. 1.* But slight change from last month.

*Jan'y 1, 1864.* Involucrum large; skin covering the front of it thin, and about to ulcerate extensively; foot considerably twisted inwards by abnormal muscular action (partial talipes varus), and the deformity steadily increasing; ankle-joint also becoming stiff. There being no now hope of preserving a useful limb, it was deemed advisable to remove it by amputation.

*9th.* The leg was amputated at the junction of the upper with the middle third, by the flap method (double flap, anterior one short); the sawn end of the tibia was levelled off, as recommended by Sanson; that is, "by placing the saw obliquely, not on the ridge, but on the internal surface of the bone."<sup>1</sup> The fibula was divided somewhat higher up than the tibia, as practised by Roux. Throughout the operation the patient was insensible from sulphuric ether. He did not exhibit any perceptible shock. The flaps were carefully coapted, and secured by several points of interrupted suture and strips of isinglass plaster. Several turns of a roller were placed round the leg to serve as a supporting bandage, but no other dressing was applied.

*10th.* Patient sitting up in bed reading a newspaper; stump in fine condition, being free from heat and redness, and almost devoid of pain and swelling.

*13th.* Dressed stump for the first time and removed the sutures; found it to be uniting by primary adhesion; no constitutional disturbance whatever.

*24th.* The last ligature came away; patient has not at any time, nor in any way, suffered in consequence of the amputation. The stump united by the first intention. In short, he recovered precisely in the same way as the most fortunate cases of amputation of the leg, on account of disease, get well.

The division of the tibia by the method of Sanson appears to me to possess practical advantages of so much importance, that it ought to be generally adopted, especially in military practice.

These advantages are, first, that it obviates the inconvenience occasioned

<sup>1</sup> Stephen Smith's Handbook of Surgical Operations, p. 151.

by the muscles retracting above the sawn end of the tibia. Malgaigne says: "Whatever be the proceeding preferred for the section of the soft parts, some modification must be added in sawing the bone; for, if you saw off the bone on a level with the muscles, their retraction will leave it projecting." Now, in such a case, when we come to bring the soft parts into apposition for the purpose of dressing the stump, it will be found that they are drawn across the sharp edges and sharp angles of the projecting bone. But if the tibia be divided obliquely, commencing the section on its internal flat surface, and terminating it at its external sharp border to which the interosseous membrane is attached, as recommended by Sanson, this inconvenience will be remedied to a very great extent; for the anterior sharp angle will be removed, and the inner sharp edge will be replaced by an inclined surface of sawn bone. Another advantage afforded by this procedure is, that the risk of exfoliation appears to be considerably diminished thereby, for the periosteum remains covered by the soft parts nearly down to the end of the divided bone.

All surgeons much experienced in the after-treatment of amputations of the leg will, I feel confident, recognize the practical value of the advantages claimed for this method of Sanson for dividing the tibia in such cases.

The principal object of this paper has been to show clearly the proper time to operate for traumatic lesions, in both civil and military practice, and I cannot conclude it better than in the words of Mr. Guthrie:—

"The advantageous results of *primary* amputations, or those done within the first twenty-four or at most forty-eight hours, over *secondary* amputations, or those done at the end of several days, or three or four weeks, have been so firmly and fully established as no longer to admit of dispute."—*Commentaries on Military Surgery*, p. 59.

The author proposes to discuss hereafter the special lesions of a traumatic character which demand amputation; also those for which resection should be practised, together with those cases of gunshot fracture, and wounds of joints, the cure of which should be attempted without operation. The foregoing paper is, in reality, introductory to the subject of amputation for injury.

---

ART. VII.—*Report of Cases of Hospital Gangrene treated in Douglas Hospital, Washington, D. C.* By WILLIAM THOMSON, M. D., Asst. Surg. U. S. A.

THE following histories of cases of hospital gangrene treated in Douglas Hospital, Washington, serve to illustrate several points of great interest in the etiology, pathology, and treatment of a disease hitherto rare in our military hospitals, and most worthy of careful study.

The victims of this disease were wounded at Fredericksburg, Va., Dec. 13th, 1862. For several weeks previous to this battle, the army had been resting on the Rappahannock, and had been exposed to no great hardships. It had been amply supplied with good and varied food, and the men were free from any scorbutic or other cachectic taint.

It is well known that the fullest preparations had been made by Surgeon Letterman for that engagement. The operations were performed promptly, and the wounded probably received better care than ever before in the history of the war.

On the 26th of December, 1862, about two hundred wounded from the battle of Fredericksburg, were received into the Douglas Hospital.

I cannot speak of their treatment, medical, surgical, or hygienic, as at that time I was not connected with the hospital. I am, however, aware that the building in which the gangrene appeared contained fifty badly wounded, and recent cases; that there was a deficiency of medical officers and dressers to insure the necessary cleanliness, and that the sanitary condition of the ward was far from perfect.

This hospital consists of the three brick houses known as "Minnesota Row;" and two large wooden pavilions, each divided into two wards.

The ward in which this disease originated is one hundred and forty-three feet in length, twenty-three feet in breadth, and sixteen feet in height (eighteen feet at the cone, and fourteen at the eaves of the roof), and contains beds for fifty patients, thus giving 1050 cubic feet of space for each bed. There are two rows of windows, the lower of which contains two, the upper one sash each; the upper windows so constructed as to be opened by means of a cord, but when opened directing a current of cold air immediately downwards upon the beds beneath.

On the 16th of Feb. 1863, I took charge of the hospital, and found the ward mentioned in the following condition: There was no ridge ventilation, nor was there any egress for foul air, except through two large wooden shafts connected with two of the stoves, which had been placed there only a few days previously. The ward was heated by ordinary sheet-iron radiating coal stoves; and no provision had been made, until a few days before, to introduce any supply of fresh air. It contained from forty to fifty patients, all wounded—many of them very severely. The police was not unexceptionable, too little attention having been paid to the removal of offensive discharges. The medical officer in charge preferred to water, as a dressing, either simple cerate or mutton tallow, which had been issued to the hospital, and which had become rancid. The attendants were, from a want of strict discipline, careless and inattentive. There was a perceptible and offensive odour in the ward, which felt close and badly ventilated; and this condition of the atmosphere seemed to have a marked effect on the spirits of the men; they were all gloomy, despondent, and homesick.

On Feb. 17th, when making my first visit with the officer in charge of the ward, I discovered

CASE I. Sergt. Otto Kosack, Co. K, 2d Md. Vols., who had been struck by a shell, Dec. 13th, 1862, which made it necessary to amputate his left leg at the middle. The operation was done ten minutes after the injury. He was received here on the 26th Dec. The stump closed by granulation, a small portion of the tibia having been removed by exfoliation. The cicatrization had been almost complete, when, a few days previous to the 17th, the still open wound commenced to slough. He was anæmic, very pallid, haggard, and with an expression of great depression in his features; his pulse was very feeble and rapid. He had been "feeling very badly" for several days, and complained of a burning pain in the stump.

On the outer side of the tibia there was an ulcer, one inch in diameter, covered with a yellowish-gray, pultaceous slough, and a serous and very fetid discharge; the edges were thickened and everted, and an areola of purple, livid congestion, extended for half an inch from the margin, which was undermined.

This sore was at once treated with pure nitric acid, applied both to the ulcer and to the areola; the ulcer was dressed with an antiseptic solution of creasote; and citrate of iron and quinine, with stimulants and nutrients were freely given.

On the 18th the sloughing had extended to the border of yesterday's livid areola, but was now more superficial; and the areola, which had likewise invaded the surrounding skin, was more florid. The ulcer was now two inches in diameter. As there was some doubt as to its specific character, the patient was not removed from the ward until the 23d, when he was transferred, with several others, to a small ward prepared in the brick building, and completely isolated from the other wounded men.

The iron and quinine was found to disturb his stomach and destroy his appetite, and was replaced by a mixture of nitro-muriatic acid and tincture of opium.

*March 3.* The sore was now perfectly healthy, and was granulating rapidly.

This was a mild case—treated in its incipency with nitric acid most thoroughly. The ulceration had not extended so deeply, nor so far beneath the margin of the skin, as to make it almost impossible to reach every portion of the diseased surface.

There was no scorbutus. The gums were firm and hard. The patient was very pallid, his heart feeble, and his pupils dilated. The mucous membranes were very pale, and the expression of the face haggard and anxious.

He recovered rapidly, with a good stump, and was transferred to St. Elizabeth Hospital, May 4th, to enable him to procure an artificial limb.

This man was seen several months after walking with great ease on his artificial leg.

CASE II. L. D. Thureston, private, Co. A, 16th Regiment New Hampshire Vols., aged 42, was struck by a fragment of shell on December 13th, 1862, at Fredericksburg, Va., which caused a severe but superficial wound of the integuments on the outer side of the left thigh.

When seen, Feb. 17th, 1863, there was a wound at the middle of the



thigh, on its outer aspect, three and a half inches long by two and a half wide, exposing the muscular tissue slightly, the surface of which was glazed and dry.

On the 10th of February it had been found desirable to open an abscess, three inches below the left greater trochanter. On the 13th, this had assumed an unhealthy look, and when I saw it on the 17th, the incision made by the lancet, half an inch in length, was surrounded by a border of sphacelus one inch in width, and by an areola of purple congestion, in which there seemed to have occurred a complete stasis of the circulation. There was no pus, but a discharge of very fetid, dark-coloured serum. There was no swelling, ulceration, or eversion of edges of the incision, which, although mortified, remained as sharp as when first made.

There was profound nervous prostration, which was indicated by his rapid, feeble, and irritable pulse; by his sallow hue; his haggard and anxious expression of countenance; his weary and helpless decubitus, and great mental despondency.

He was treated internally with stimulants, the most condensed and nourishing food, and citrate of iron and quinine; nitric acid was applied locally, followed by a weak solution of creasote, three drops to the ounce of water, as an antiseptic dressing.

The sphacelus extended in all directions rapidly, unchecked by this treatment, from which I hoped little, since it was impossible to bring the acid into contact with the diseased tissues, although it was injected into the incision. The constitutional symptoms, also, became more grave.

On the night of the 20th, there was quite a severe hemorrhage from the incision, oozing slowly and very difficult to restrain, since it was caused by the erosion of vessels at a distance from the small incision. There was now a circular patch of sphacelus surrounding this small incision, three inches in diameter.

On February 23d he was removed to the ward in the brick building. The original wound, hitherto unaffected, now began to be black and offensive. The sphacelus extended from these two centres, at the rate of one inch daily, preceded by the above-mentioned areola of purple stasis.

No treatment, local or constitutional, produced the least effect. Stimulants were given in every possible form, until the stomach refused to retain them. Pure nitric acid was freely applied to the diseased surfaces with no benefit. He fell into a typhoid condition, with muttering delirium, subsultus tendinum, etc., and finally expired February 28th.

The sphacelus then extended from the trochanter major to three inches above the outer condyle; and from the median line in front to a corresponding point behind. There had never been any ulceration, but the tissues seemed to perish *en masse*. The incision made by the lancet was yet plainly seen in the centre of an extensive surface of mortification. This man was 42 years old, had had chronic diarrhoea, and was in a feeble state of health when wounded.

No benefit was observed from any treatment. He took, in addition to the nutrients and tonics, the acid mixture with tincture of opium.

The preparation was forwarded to the Army Medical Museum.

CASE III. Private Samuel Fossett, Co. I, 12th Regiment Rhode Island Vols., suffered a compound fracture of the right clavicle, by a fragment of shell, at Fredericksburg, Va., December 12th, 1862. There was very extensive injury to the soft parts. He was admitted to this hospital December 26th.

On February 18th, 1863, a large granulating surface, two inches deep, was covered with an ashy, gray slough, and the discharge was converted from pus into an offensive ichor; the edges were thickened and everted, and surrounded by the characteristic areola of congestion, fading away into a bronzed hue.

The ulceration here attacked cicatricial tissue, which disappeared very rapidly. The entire surface was treated with nitric acid diluted, and tonics and stimulants were given internally.

The acid changed at once the character of the sore. It soon commenced to granulate, and the repair was then as rapid as had been the destruction. He was discharged the service, April 7th, for partial paralysis of the right arm, from traumatic injury of the brachial plexus.

This case was easily treated, being recognized as gangrene at once, and terminated quickly in convalescence, with a perfect recovery. The constitutional symptoms were never severe, although the man was anæmic, and had great mental despondency.

He was also removed from the crowded ward, and placed in a more salubrious one in the brick building.

**CASE IV.** Charles Underwood, Co. D, 31st Georgia, aged 24, for a wound caused by a shell, on December 13th, 1862, at Fredericksburg, Va., suffered an amputation of the left leg at its middle.

He entered this hospital December 25th. Nothing interesting occurred until February 20th, 1863, when a granulating surface on the face of the stump became covered with a gray slough, and the discharge was changed from pus to an offensive ichor. He was anæmic and much depressed in spirits. This case occurred in the same ward, but on the opposite side from the previous ones. The ulcer was dressed with sol. of creasote, and tonics and stimulants given internally.

On the 23d he was removed to the brick building, his ulcer freely treated with nitric acid, and then dressed with a mixture of equal parts of bals. copaibæ and ol. ricini. The ulceration had never been rapid in this case, and it was only considered specific because other undoubted cases had occurred in the same ward.

The character of the ulcer soon became changed, the granulation was rapid, and he was finally transferred to military headquarters, May 4th, 1863, perfectly recovered.

**CASE V.** Isadore Wick, Co. D, 1st N. Y. Artillery, aged 32, had his right thigh amputated on the field, for a comminuted fracture of the tibia, received December 13th, 1862, at Fredericksburg, Va., caused by a minie ball.

He was admitted December 26th. I regret that I can give no account of his progress, but I learned that the flaps had been insufficient, and that the stump had been closing by tedious granulation. There had been a free discharge, and his general condition was, therefore, unfitted to withstand the depressing influence of hospital gangrene. His bed was on the same side of the ward, and in close proximity to the first case reported.

The operation had been a circular one; the granulation had entirely covered the end of the bone, and there was, when seen on the 18th Feb., only a narrow strip, not yet cicatrized, between the margins of skin. This was now covered with a gray slough, and had the characteristic fetid odour. It was dressed simply with the creasote solution, my faith in the

acid treatment having been shaken by the reports of medical officers who had visited the cases at Annapolis, Md.

*Feb. 23d.* The case was now considered an unequivocal one of hospital gangrene, and was removed to the ward selected for such cases. The cicatricial tissue had all yielded to the sloughing, and the subcutaneous connective tissue had been destroyed for two inches beneath the skin at the outer angle of the original incisions. No change was made in the local treatment, as the creasote was a perfect deodorant, and as good results were hoped for, from its local use, as had been reported from Annapolis.

The destruction was limited to the connective tissue until March 9th, when there was a margin of sphacelus half an inch wide in the true skin. The constitutional symptoms had been growing more grave. His mental despondency was most marked, his face pale and anxious, his pupils dilated, his pulse 100 per minute, and feeble, and his skin very moist; a free diarrhoea had also commenced.

The tonics and stimulants having produced anorexia and nausea, were replaced by a mixture of tincture of opium and hydrochloric acid, in such proportions that he took gtt. xvj of tr. opii, and gtt. iv of acid. hydrochlor. every fourth hour. Beef essence and milk punch were given as freely as his stomach would tolerate them.

*11th.* As his general condition became less favourable, the local action was changed from molecular death to sphacelus. The whole face of the stump has now a margin of black mortification of the skin, outside of which was the usual areola of purple congestion—the complete stasis of to-day becoming the sphacelus of to-morrow. The end of the femur, protected by rosy granulations, now protrudes from the black mass of sphacelus, the integument having become loosened by the destruction of the subcutaneous connective tissue and retracted. The presence of this mass of putrefaction seems to add to the nervous prostration—if indeed the absorption of such peccant material is not its sole cause. Pure nitric acid had been applied several times, but it had been found impossible to convey it into the depths of the ulcer.

*21st.* No change except for the worse had occurred. Stimulating poultices of cinchona, ginger, and flaxseed had been used locally, but with no benefit.

Antiseptics, such as the solutions of the chloride of soda, creasote, and permanganate of potash were necessary to purify the ward and render it endurable for his attendants. Nutrients and stimulants had been pushed to the last extent, and opium had been largely given for its supposed specific effect in the disease, as well as to allay suffering. The symptoms had been typhoid for several days; emaciation had gone on rapidly; there had been subsultus tendinum and muttering delirium with extreme prostration until this date, when death occurred.

The limb was removed after death and the specimen sent to the Army Medical Museum. The sphacelus had involved all the tissues for five inches above the divided bone, and there seemed to have been a faint effort to form a line of demarcation.

This was, at first, a very mild case, with no very decided constitutional depression, until the system seemed to be poisoned by the absorption of the products of the gangrene, when the ulceration became more rapid, and was finally, as the strength succumbed, converted into uncontrollable and

rapidly extending sphacelus, accounting satisfactorily for the unfortunate result.

The treatment locally had been, first, weak sol. of creasote, gtt. iv to water 3j, made soluble by alcohol 3j; and second, strong nitric acid; never fully applied, however, to the depths of the diseased tissues. The constitutional treatment was stimulating, sustaining, and tonic.

CASE VI. Patrick Morrissey, private, Co. K, 20th Mass. Vols., aged 46, had been wounded on the 13th Dec., at Fredericksburg, and suffered an amputation of the left leg at its middle.

He was admitted Dec. 26th, 1862. There had been no union; the flaps had sloughed and the bone protruded, as in almost every case transported hither on that occasion. He had been broken down by a free discharge and diarrhœa. His bed was in the same ward, and on the same side with the previous cases, and his wound was dressed by the same medical officer and nurses.

March 6. His leg for six inches above the face of stump was swollen, erysipelatous looking, and riddled with small orifices leading to abscesses. The face of the stump was composed of purplish, lowly organized, cicatricial tissue, upon which a patch of sphacelus as large as a nickel penny, surrounded by the livid purple areola, now appeared. This was freely incised, touched thoroughly with pure nitric acid, and dressed with a fermenting poultice sprinkled with sol. sodæ chlorinat. Internally, gtt. xv of McMunn's elixir of opium were given every fourth hour.

This attack was ushered in by nausea, rigors, and fever; and the patient had a desponding, yet anxious expression of countenance. His diet was "extra" with stimulants. He was at once removed from the large ward and placed in a pleasant one selected for these cases on the second story of the brick house.

9th. The edges have yielded, until the ulcer is now two and a half inches in diameter, covered with a tough yellow slough, which adheres strongly and extends deeply into the tissues of the centre. The pure acid was again thoroughly applied both to the diseased surface and to the areola. Internally a mixture of tr. opii, gtt. xvj, acid. hydrochlor. gtt. iv, every three hours, with extra diet and stimulants, was ordered.

12th. Ulceration was unchecked, was now three by two inches in extent, and the margins, undermined by destruction of connective tissue, were "piled up," thickened, and everted. There was diarrhœa with decided nervous prostration. The sloughs were all removed with the forceps and scissors, until the vascular tissue beneath was reached, the sore, well dried, was thoroughly cauterized with nitric acid, and dressed with a poultice and disinfectants. Elixir vitriol was ordered for the diarrhœa.

13th. The appearance of the sore was improved, and the general condition was better.

14th. Granulations were now seen on the sore, and the areola had lost its livid hue.

April 20th. An immediate improvement in the general condition followed the thorough acid treatment of the ulcer. The tongue became clean, the diarrhœa was checked, the appetite returned, the food was assimilated, the whole expression of countenance was changed from anxiety to cheerfulness, the gnawing pain was relieved, and the patient slept soundly. The appearance of the sore was also changed as suddenly from

a foul, offensive, sloughing ulcer, to a rosy, granulating surface, in which repair was as rapid as the previous destruction.

This man recovered with a good stump, and was transferred to St. Elizabeth Hospital to receive an artificial leg.

**CASE VII.** John Jordan, private, Co. H, 2d Maine, aged 20, was struck at Fredericksburg, Va., Dec. 13th, 1862, by a fragment of shell, which passed across the right thigh below Poupart's ligament, through the scrotum, destroying the right testicle, and behind the left thigh, producing in its course very extensive but superficial wounds of the anterior portion of right, and posterior portion of left thighs. He was admitted Dec. 26th, 1862, and placed in Ward No. 5.

*Feb. 27, 1863.* He had febrile disturbance and anorexia, a yellow furred tongue, an anxious, restless expression of countenance, and a burning pain in his left thigh. There was, on the right thigh, a granulating surface three by two inches in dimensions, level with the integument and cicatrizing rapidly: a smaller, equally healthy surface remained unhealed on the scrotum; whilst on the posterior portion of the upper part of the left thigh, an ulcer, three by two inches in extent, was found, oval in shape, covered with an ashy, gray slough, with its margin thickened and everted, surrounded by a livid areola, and, instead of normal pus, discharging a thin fetid serum mixed with debris. He was at once removed to the house, the whole diseased surface was touched with pure nitric acid, and dressed with the creasote lotion: stimulants and the best extra diet, with beef essence and milk punch at short intervals, and ferri. et quin. citrat. three times daily, were ordered.

*March 5.* The attempt to push the nutrients and stimulants produced, as it generally does, anorexia, nausea, vomiting, and diarrhoea. The tongue became thickly coated with a yellow fur, and dry and red at the tip; and so great was the gastric disturbance, that all medicines were discontinued and the stomach allowed to recover its tone by rest, no longer being teased either by drugs or excessive and undesired nutriment.

No benefit followed the local application, and the ulceration had extended in every direction. There was the characteristic margin, preceded by the areola of livid stasis, preparing the tissues for their rapid destruction. The connective tissue beneath the skin had been destroyed, so that the skin for one inch from its margin was perfectly movable. The muscles separated from each other by the death of their connective tissue lay in the wound, bathed in its discharge, but rosy and florid, and resisting the advance of the disease.

This sore was so unmistakably hospital gangrene that several pictures of it were taken by direction of Surgeon Brinton, which represent well the surface of the ulcer, dripping with its thin serous discharge mingled with shreds of dead connective tissue, its "piled-up," thickened, and everted margin, surmounted by a thin line of vivid redness, and its broad zone of purple congestion, shading away into a bronze hue: the depth of colour in the areola indicating the engorgement of the small vessels, and its hue, the feebleness and slowness of the movement of the blood.

It was determined to try the opium treatment, with hydrochloric acid as a tonic, and this mixture was given in the proportion of tinctura opii gtt. xvj, with acid. hydrochloric. gtt. iv, every three hours. The sore was dressed with a stimulating poultice composed of flaxseed, cinchona, and ginger, mixed with porter.

*11th.* Under the use of the acid internally, the tongue had become clean

and moist, the tone of the digestive apparatus improved, and a fair quantity of food had been taken. Porter and ale had been given as the stomach would retain them. But little change had taken place in the character of the ulcer, which was eight inches in length by seven in breadth, extending to the perineum, and irregularly oval in shape. The muscles exposed (the semi-membranosus and biceps) had yielded, and were now almost divided. The sores on the right thigh and scrotum had not been in the least affected, *but were cicatrizing rapidly.*

The entire surface of the gangrenous sore was now thoroughly cleaned, all sloughs and shreds removed with forceps and scissors, was well dried with lint and carefully painted with pure nitric acid. The brush, charged with acid, was passed beneath the excavated margin, in some places more than an inch. The patient was etherized, and this acid application was made most carefully and completely. This was considered a *dernier ressort*, for, although the capacity for taking and assimilating food seemed to have been increased by the acid treatment internally, yet his strength was daily diminishing from the exhausting discharge and from the absorption of the products of the gangrene.

On the succeeding day an entire change in the sore was observed; there had been no extension of the gangrene, the fetid odour was gone, and the discharge was more consistent and less serous. In a few days more all the shreds of dead fascia were removed, and the surface was found to be perfectly healthy. The contrast between the ragged, offensive, yellow-coloured ulcer, before the last application of acid, and the florid, perfectly normal, granulating surface, which replaced it, was as gratifying as it was surprising. With the local there was also a constitutional improvement. The appetite became voracious; the patient slept well; there was no pain, and the process of repair was very rapid. The acid was continued internally.

*April 1.* The sore was now two by three inches in extent, and cicatrizing rapidly.

*20th.* But a small surface yet remained unhealed. The patient was in perfect health, had gained flesh very rapidly, and was now on crutches.

There was some contraction of the flexors, as the biceps and semi-membranosus were both involved in the destruction.

The most remarkable circumstance in this typical case is the fact that when the gangrene attacked the granulating surface of the left thigh, the equally large granulating surface of the right thigh was unaffected; and that whilst the gangrene was ravaging the left thigh the rapid cicatrization of the right proceeded uninterruptedly. The discharge from the left thigh was so profuse that no precaution would have prevented the virus from coming in contact with the excoriated surfaces of the scrotum and right thigh. If, therefore, the disease be propagated by inoculation, all the circumstances were favourable; since the proximity of the thighs at their upper part, and a denuded surface on the scrotum, that might act as a link, render it certain that a portion of the great discharge from the left must frequently have been placed in contact with both of the other sores. If, on the other hand, the gangrene be not a local but a constitutional disease, why should it spend itself on one granulating surface when there were two others equally obnoxious? The contrast between these sores was marked; for whilst the

tissues of the left thigh were melting away under one's very gaze, the process of repair in the scrotum and right thigh was progressing as rapidly as under the most favourable circumstances. In its earlier stages this case was twice treated with nitric acid, and perhaps imperfectly, from its not having been carried into the recesses of the ulcer.

The system of urging nutrients, stimulants, and tonics, irrespective of the natural desires of the patient, is, I am satisfied, pernicious. The vital energy being depressed, the digestive organs are enfeebled; and the introduction of milk-punch, beef-essence, eggnog, &c., with stimulants, porter, ale, &c., into an unwilling stomach, simply produces anorexia, nausea, vomiting, and diarrhoea. The tongue became furred and dry, and there was a perfect disgust for all food. The hydrochloric acid was given to correct this condition; and whether its action was confined to the stomach in rendering soluble the aliment, given in very small quantities, or whether its action was catalytic or eliminative, I shall not pretend to state, but under its influence the tongue became moist and clean, and the patient made known his desire for food. Nutrients were then given more freely as his appetite returned. The recovery of this man is due, first, to the thorough application of nitric acid to every portion of the ulcer, which changed its specific nature immediately; and, second, to the combined effect of acid and opium internally. After the last complete application of acid the sore was changed in character, the areola disappeared, the surface became clean, the margins lost their elevated appearance, the serous discharge became purulent, and the offensive odour was entirely destroyed. An equally marked improvement occurred in his general condition.

**CASE VIII.** R. W. Plummer, private, Co. D, 1st Delaware Vols., aged 34, was struck on the outer aspect of the left thigh, at its middle, by a bullet, at Fredericksburg, Va., Dec. 13th, 1862. The bullet struck against his bayonet, and penetrating his leg caused a severe flesh wound.

He was admitted Dec. 26th, 1862. The ball dropped out Jan. 1st, 1863. This was the only case of gangrene that occurred in the brick building, and appeared on the upper floor, at a distance and entirely disconnected from the wooden pavilion where the other cases were treated.

*Feb. 15.* The wound was almost closed.

*March 9.* For three days past there have been anorexia and fever. There is now an ulcer on the left thigh as large as a silver quarter dollar, with everted edges, livid areola, and a fetid discharge. The connective tissue has been removed from beneath the margins by ulceration, leaving the skin undermined. Pure nitric acid was applied to the ulcer, which was then dressed with solution of sodæ chlorinat., and tinctura opii and acid. hydrochloric. given every three hours internally.

*12th.* The ulceration having continued unchecked, nitric acid was again applied, followed by a poultice; the man was moved into the gangrene ward.

*15th.* The second use of the acid locally has changed the whole character of the ulcer. It is now about two inches in diameter, free from odour, rosy in colour, and granulating rapidly.

22d. This improvement continued until this date, when the repair had brought the bottom of the ulcer to a level with the surrounding skin, and cicatrization had fairly commenced. There was at this time a profuse diarrhoea from some error in diet, with depression of the vital energies, which was accompanied by a relapse into the gangrene. The sore is now covered with a gray slough, is very painful, and has the characteristic areola. The expression of the patient's face is very anxious and haggard. Nitric acid was most thoroughly carried into the recesses of the ulcer, and the acid and opium mixture ordered internally.

28th. The ulceration has extended very rapidly, and is now a perfectly characteristic specimen of hospital gangrene. The local use of the acid seemed to do harm, since the destruction of tissue was more rapid after its application. The general condition is alarming. There are uncontrollable diarrhoea and nausea. The pulse is very rapid and feeble, the skin relaxed, the mind dejected; and the expression of face, and the decubitus betoken profound debility. Nitric acid was again most carefully applied.

April 2. The ulcer now measures seven by six inches. The whole surface is dripping with a fetid, sanious discharge, laden with debris of the fascia and connective tissue; the skin, undermined, is separated from its attachments for the distance of one and a half inches from the free margin, which is "piled up," everted, and surrounded by an areola of livid, bluish redness, three inches in width. The general condition is most unfavourable. There are great prostration, profuse perspiration and diarrhoea; with a pulse of 130 and very feeble, and tongue red and dry; and a complete disgust for food, with nausea. His condition is so desperate, that I feel no hope of his recovery. The nitric acid, when last used, had only hastened the destruction of tissue, and after its failure, I was without a substitute. It had been twice used with no good effect, and had been applied most carefully to the entire surface. The nervous prostration, which is so prominent a symptom of this disease, was so profound that I think this man would have died within forty-eight hours, exhausted, but for the treatment employed. The constant burning pain had destroyed his rest; his diarrhoea was profuse, his skin bathed with perspiration, his stomach so irritable as to reject all nutrients and stimulants, and the expression of his face was dejected, depressed, anxious, and haggard to a remarkable extent.

The surface was again carefully cleaned of all sloughs and discharge, and thoroughly cauterized with the solution of bromine, employed by Surgeon Goldsmith, U. S. Vols., viz. :—

Bromine, ℥j; potassii bromid., ℥iij; aquæ, ℥iij. The patient was anæsthetized, and the caustic solution applied most liberally to the entire diseased surface, which was immediately deodorized, and covered with a tough yellow deposit. The sore was then covered with a piece of dry lint, a second piece of lint, wet with the bromine solution, was placed over it, upon this a piece of muslin spread with cerate, and over all a piece of oiled silk, confined closely with a roller, was bound; and the local effect of bromine was thus continued in the form of vapour. The burning pain disappeared; the antiseptic effect of bromine seemed to restore the appetite by destroying the virus that had been poisoning the whole system, and, for the first time for many days, he took some food.

May 4. The exposure of the surface of the body to the air at this application of the bromine was followed by a severe attack of bronchitis, with viscid and bloody expectoration, and severe dyspnoea, which was treated by warm cataplasms to the chest, and by expectorants.



7th. The ulceration has ceased, the odour disappeared, and the surface is now clean and rosy. The vapour has been used twice daily. An immediate improvement followed the use of bromine, both locally and constitutionally. The pain, diarrhoea, and profuse perspiration ceased, the appetite returned, and the nervous prostration soon yielded to the extra diet and stimulants. The bromine was used twice in solution, and continued in the form of vapour until the granulations became normal.

23d. He is convalescent, and the ulcer entirely cicatrized. The bromine produced this gratifying change, after the entire failure of nitric acid; nor do I hesitate to affirm that, but for its employment, the case would have terminated fatally.

CASE IX. George Zilch, Sergeant Co. K, 7th N. Y. Vols., aged 25, had his left leg amputated at its upper third, for a bullet wound received at Fredericksburg, Va., Dec. 13th, 1862.

He was admitted to Douglas Hospital December 26th, and placed in Ward No. 5. The stump had closed slowly by granulation, until there remained an ulcer as large as a half dime on its face.

April 14, 1863. This ulcer was inflamed around its edges, and covered with a white pultaceous slough; there was no constitutional disturbance, and the patient was allowed to remain on his crutches. The ulcer was cauterized with nitric acid, and dressed with solution sodæ chlorinatæ.

18th. The ulceration and areola are both enlarged, and the slough, yet very tough, is thicker. Acid was again used locally.

21st. He is feverish, and inclined to nausea; his pulse 120, skin hot, and tongue thickly coated. The ulcer is extending in depth, and he was removed to the gangrene ward.

22d. The solution of bromine was applied to the sore after cleansing the surface as much as possible of the tenacious slough. His general condition was unfavourable, and there was a tendency to diarrhoea and perspiration. Internally he took muriatic acid, with extra diet and stimulants.

24th. Bromine was again applied to the surface, and used in the form of vapour. The ulcer was now three inches in diameter, irregularly circular in form, with ragged, everted, and thickened edges, and surrounded by a purple areola. The slough was one inch in thickness, and resisted the action of the bromine.

26th. The sore is looking better; it has been disinfected since the first application of bromine, and the constitutional symptoms are better.

27th. A painting in oil was made to-day by Surgeon Brinton's direction, which would be pronounced a good representation of hospital gangrene.

28th. The slough is much thinner to-day, and the granulations are showing through the thin gray covering.

29th. The sore is much better, is becoming covered with granulations, and has lost almost entirely its specific appearance. There is no constitutional disturbance, no fever, no headache; the tongue is cleaning off, and there is a return of the appetite. The bromine vapour was discontinued, and a sol. sod. chlorinat. substituted.

30th. The livid areola has been changing daily in hue under the bromine treatment, has now entirely disappeared, and the sore is perfectly healthy.

May 6. He is still improving, and is taking tonics and nutrients.

20th. The sore is reduced to half its original size, and is now cicatrizing rapidly.

24th. There is now a surface as large as a penny unhealed. The patient's

health is very good; he is about the ward on crutches, and is no longer considered an interesting case.

We have in this case another instance in which the acid, locally used, proved useless, and in which the solution of bromine caused an immediate improvement. It was found necessary to apply the caustic solution to the ulcer three times, owing to the thickness of the slough, which was too closely attached to be removed by spatula or forceps. Its action here seemed to be to correct the fetor at once, to check the molecular death, and to change the hue of the areola, by causing a more healthy action in the capillaries. The gnawing, burning pain was relieved, and the patient was able to sleep in comfort. The absorption of the virus produced in the ulcer was prevented by its destruction, and the nervous system quickly regained its tone.

This man steadily improved, recovered with a good stump, and was finally sent to New York to be mustered out of the service.

I will conclude this brief clinical history by a short summary.

*Etiology.*—This disease made its appearance in a wooden pavilion, containing fifty beds, most of them occupied by very seriously wounded men unable to leave the building, with a cubic capacity of 1050 feet to each bed, heated by ordinary radiating coal stoves, devoid of any system of ventilation, and having no ingress for pure air, nor egress for foul, except through the windows and doors. This want of pure air was combined with a want of strict police, and a careless and unscientific method of dressing the wounds, rancid ointments being largely used instead of the ordinary water dressing.

No case of gangrene was received as such into the hospital, nor is it probable that it was otherwise introduced.

Although a majority of the cases in this ward escaped gangrene, yet there was evidently some depressing agent at work, since but few wounds healed rapidly. The patients seemed also dispirited, homesick, and moody. Those who were attacked were removed to a ward in the brick house, where they were isolated, and at the same time placed under better hygienic influences.

Two shafts for foul air, connected with the stoves, which withdrew the foul air from near the floor, had recently been placed in the ward by order of the Surgeon-General. This was not considered sufficient, and the long doors of these foul air shafts were kept constantly open. Strict attention to cleanliness and careful dressing was enforced, and, what might have been a very severe epidemic, was confined to few cases. The upper row of windows were rehung in such a manner as to direct the currents of cold air admitted in a line with the roof, and, to crown all, the *ridge ventilation* was applied to the pavilion.

These precautions, and an improvement in the diet of the house, giving more vegetables and antiscorbutics, enabled me to prevent any further serious manifestations.

No.	Names.	Ward.	Side.	Date of attack.	Grade of disease.	Result.	Treatment.
1	Otto Kossacke	5	West	Feb. 15, 1863	Ulceration	Cured	Nitric acid.
2	L. D. Thurston	5	"	" 15, "	Sphacelus	Death	"
3	Sam'l Fossett	5	"	" 18, "	Ulceration	Cured	"
4	C. Underwood	3	East	" 20, "	" mild	"	"
5	J. Wick	5	West	" 28, "	Sphacelus	Death	"
6	Pat Morrissey	5	"	March 6, "	Ulceration	Cured	"
7	J. Jordan	5	East	Feb. 27, "	"	"	"
8	E. W. Plummer	1	Building	March 9, "	"	"	Bromine.
9	Geo. Zilch	5	East	April 14, "	"	"	"

There were three other wards of like construction, with Ward No. 5, but two of them were unoccupied, and the third one contained fewer, and less serious cases.

The foregoing table indicates that of the nine unmistakable cases reported, eight appeared in Ward No. 5; and that of these eight five occurred on the west, and three on the east side of the ward. Although these facts would suggest the probability of inoculation, yet I cannot but remember that there were at least thirty-five other wounded men in this ward who escaped, although the disease had been in existence several days before Feb. 17th, when I took charge, and no precautions against contagion had been employed.

I shall not attempt to argue here the long-disputed point of contagion or *non-contagion*, but simply state it as the result of my observation, that I saw no well-marked instance of inoculation, whilst I did see many wounds escape this influence where inoculation was not only possible, but probable. Nor was it necessary to invoke the aid of any specific virus, since the unfavourable hygienic influences which had surrounded these men from the date of injury, Dec. 13th, and the date of admission into hospital, Dec. 26th, 1862, to Feb. 15th, 1863, were sufficient to produce, in all the cases treated in Ward 5, a well-marked cachexia—neither scorbutus nor anæmia, but more unmanageable than either, and due, most probably, to the absence, simply, of fresh, pure air in sufficient quantities. With no further improvements than those mentioned, a marked change for the better took place in the other inmates of this ward. Their wounds became healthy, and healed rapidly, and their spirits became cheerful.

It will be observed from the table that I have described two grades of hospital gangrene, the one mild, generally manageable, and characterized by ulceration or molecular death of the tissues, spending itself generally in the subcutaneous and intermuscular connective tissue; the other, more rapid in its course, more fatal, less amenable to treatment, and distinguished by sphacelus or mortification, *en masse*, of the invaded tissues. It will be seen that of the nine cases, seven are described as ulceration, and two sphacelus, and the latter both fatal.

These two cases last mentioned were entirely uninfluenced by the treatment employed. The rapid invasion and advance of the mortification, and the impossibility of reaching it with nitric acid, to influence it locally, left but little to do, but to observe its profoundly depressing effect on the vital

forces. Bromine may prove the antidote in such cases, but its virtues were then unknown to me.

*Treatment.*—Recognizing the depressed condition of the first few cases, I endeavoured to remedy it by giving at short intervals nutrients and stimulants, with such tonics as seemed proper; and milk punch, alternating with beef essence, porter or ale, and egg-nog, was at first given, regardless of the desires of the patient. The ferri et quin. cit. with sherry wine was given in doses of gr. vj to x three times daily. This system was found injudicious, since it overpowered the feeble digestive organs, and caused nausea, vomiting, and diarrhoea; it was suspended, and acid. hydrochloric. gtt. iv, in combination with tr. opii gtt. xvj, were given every three hours. Under this treatment the tongue became moist and clean, and the appetite returned sufficiently to cause the patient to ask for and enjoy a reasonable quantity of food. The opium was given to allay the gnawing pain and to give rest and sleep, as well as to obtain any specific influence over the disease which it might possess, as claimed for it by the older writers.

The local treatment consisted at first in the use of undiluted nitric acid, freely applied to the entire surface of the ulcer. The table indicates the success of that treatment. Of the nine cases, all were treated with the acid in the early stages. Of these, two were fatal, and two resisted the acid; or, in other words, in four cases it was useless. Of these four, the two fatal cases were not treated otherwise, whilst the other two were treated with success, with bromine. The five cases treated successfully with acid are marked ulceration, and were milder than those that proved fatal, or than those that were treated with bromine successfully.

The dressing, after the use of the acid, was an antiseptic wash, either creasote or liq. sod. chlor. in a dilute solution. In some instances a yeast poultice, or a stimulating one of cinchona, ginger, and porter, seemed to assist in cleaning the surface.

Where the sore lost its sloughing character, after the use of nitric acid, the mild antiseptic washes were sufficient to encourage rapid granulation.

Of more value than the acid is the solution of bromine in water and bromide of potassium, proposed by Surgeon Goldsmith, U. S. Vols. Two cases were treated with this agent, in both of which nitric acid had failed. One of these would, doubtless, have proved fatal; whilst the other was progressing rapidly, although the acid had been used several times without benefit.

The action of the bromine is that of a caustic; all the necrosed tissues are converted into tough yellow shreds, and are perfectly deodorized. The ulceration seems to be checked at once, whilst the nervous system, no longer depressed by the absorption of the fetid products of the mortification, soon recovers from its depression. The areola loses its livid hue, becomes more crimson, and finally disappears; the sloughs are rapidly thrown off, and a rosy, florid surface appears beneath.

The bromine was also used in the form of vapour, confined to the surface by oiled silk. Its antiseptic influence is very powerful, since not the least odour could be perceived on dressing these gangrenous sores, even when they had been covered closely with oiled silk for twelve hours. From its antidotal efficacy in these two cases, I have formed a high opinion of its value in the local treatment of this disease.

*Microscopy.*—The discharges from several of these cases were examined, to ascertain whether some of the speculative views in regard to the presence of fungi and their influence in producing the disease could be sustained, but no fungi were found.

The discharge consisted of fluid, granular matter, and debris. The connective tissue seemed to have been broken down into unrecognizable granular material. The fibrous tissue was softened and easily teased out, and in the muscular tissue the striated appearance was lost before the fibrous.

No evidence of textural growth was found in the discharges, although the "piled-up" and thickened margins of the ulcers would probably reveal, on examination, a multiplication of the connective tissue-corpuscles, as reported in a similar group of cases at Annapolis, Md., by Assistant Surgeon Woodward, U. S. A.

Since the preceding report was drawn up, four other cases of hospital gangrene have been observed, occurring sporadically, and treated with success with bromine. Their clinical histories are very briefly offered for consideration, in addition to those already submitted. No other cases have occurred in this hospital. It will be observed that three of these four cases were fully treated with pure nitric acid without benefit, and that the four did yield eventually to the local application of bromine. Where that remedy has required heretofore several repetitions, it would now be used more energetically. The diseased surface would be thoroughly cleansed of all sloughs, by removing those portions dead, yet tenaciously adherent, with the forceps and scissors, and pure bromine would be freely used by means of a glass pipette or a syringe. A number of the cases reported I am now satisfied would have proved fatal but for this local treatment; and it will be a proud satisfaction to Surgeon Goldsmith to know that he has not only already been instrumental in preserving so many valuable lives, but that he has provided the military surgeon with a defence against one of the most deadly and obdurate of his antagonists.

In conclusion, the writer regrets that circumstances do not permit him to render these clinical histories more acceptable to the critical reader. The report was made to the Surgeon General for the future use of the surgical historian of the war, and now meets the public eye in this crude form because it has been represented that further evidence as to the virtues of bromine might be of service in the exigencies of the coming campaign.

CASE X. Michael Flood, age 24, priv. Co. D, 33d N.Y. Vols., was struck by a minie ball at the battle of Chancellorsville, May 3d, 1863, which entered the right thigh anteriorly, comminuted the femur for four inches at the junction of the middle and upper third, and escaped posteriorly. He was admitted on the 8th of May. This man had been suffering from diarrhoea, and was in a feeble condition. The usual profuse suppuration followed the injury, thus reducing his strength still further. The leg was lightly dressed, was supported by sand-bags, and extended by means of a brick attached to the limb by a band of adhesive plaster. On July 23d, the inner surface of the thigh, at its middle, was found red and inflamed opposite the seat of fracture, and in the centre of this diffused redness there was a spot very tender on pressure, slightly softened, and indicating an approaching abscess. This was treated with a poultice. On the 24th, a small black spot of sphacelus was observed in the centre of this inflamed region, which was easily detached, and then revealed a sloughing condition of the connective tissue.

No previous abrasion of the skin existed, nor any wound which would have permitted of inoculation; nor was there any other case of gangrene then under treatment. The diarrhoea simultaneously increased, and the patient's condition became rapidly worse. The ulcer was treated with the solution of bromine and bromide of potassium. This was followed on the following day by pure nitric acid, with the apparent effect of adding to the rapid destruction of tissue. On the 27th, the ulcer was in dimensions five by four inches, with irregular ragged edges, everted, thickened, and extensively undermined at the margins; and, in a word, presented the characteristics of severe hospital gangrene. It was now thoroughly treated with pure bromine. The improvement was marked; the ulcer became deodorized; lost rapidly its sloughing, ragged look; became clean, then florid, from rapid granulation, and in a few days was converted into a perfectly healthy, rosy surface. The man's broken condition gave no hope of his recovery. There was still a free discharge from his fractured femur, his diarrhoea continued unchecked, and from these he sank exhausted, and died on the 6th of August. The gangrene here did not attack the gunshot wound through which the discharge from the seat of fracture escaped, but invaded a new unwounded surface, and one upon which no abrasion was known to exist. The gangrene was perfectly removed previous to his death.

CASE XI. P. C. Barton, Co. D, 26th New York, age 25, was struck at Chancellorsville, May 23d, 1863, by a piece of shell, which comminuted with extensive laceration the right tibia and fibula, at the middle, and fractured the right femur at the junction of the lower and middle third. This was a most severe wound, since the soft parts were so greatly injured. He was admitted on the 8th, his leg placed in a bran-box, and slight extension attempted by fastening the foot to the foot-board and elevating the lower end of the bedstead. Profuse discharge and occasional attacks of diarrhoea reduced his strength, whilst his wounds were undergoing rapid repair. On July 1st, he was removed to a ward filled with other wounded men, and in a few days the granulating wound on his leg became grayish, and the discharge thin and offensive. The wound of the thigh had almost closed. This was recognized as mild hospital gangrene, and was treated with strong nitric acid, followed by yeast poultices. No improvement followed. The cicatrized tissue, the offspring of the previous repair, was rapidly removed, the ulceration spread under the sound integument, and the sore assumed the characteristic appearance of gangrene. Stimulants

and mineral acids were given internally, but rapid emaciation and general prostration ensued from the continuance of the diarrhoea. The sore was then treated with the solution of bromine, but required several applications to check the ulceration. Pure bromine would now be employed in such a case. This man was moved to a better ward on July 30th, and the ulcer was then seven inches in length by four in width, occupying the outer side of the right leg.

Soon after his removal an abscess formed in the outer portion of the right thigh, the pus was evacuated, and gangrene immediately attacked the walls of the cavity; this extended with great rapidity, became four by three in extent in two days, and was immediately arrested by the bromine. No hope whatever was entertained of this man's recovery. A severe comminuted fracture of both bones of the leg, a compound fracture of the same femur, and two severe attacks of gangrene, combined with an obstinate diarrhoea, had brought him to the last stages of exhaustion. By the 12th of August his ulcers were normal in appearance, and were granulating rapidly; the bones had united, and his diarrhoea had been checked by nitrate of silver and opium. The improvement was gradual, but constant; his stomach recovered its tone, the quantity of food was increased; his whole condition became more favourable, and he was finally sent home on the 20th of September, his term of service having expired. He was able to travel safely, and his wounds were almost closed.

CASE XII. Wm. Hutchinson, age 32, Co. F, 107th New York, was struck by a bullet at Chancellorsville, May 3d, 1863, in the middle of the right tibia, which comminuted the bone, without, however, fracturing it through. He was admitted June 17th; the wound was discharging freely, and, shortly after his admission, several fragments of bone were removed. He was kept quiet in bed and his leg dressed with water. On the 10th of August the open wound lost its healthy look, and the discharge became thin and offensive. On the 18th the case was beyond doubt a mild one of hospital gangrene. There were the burning pain, the livid areola, the thickened everted edges, and the deep, tenacious, gray slough occupying the former seat of the opening. No effort was made to remove this necrosed tissue, and hence the application of the pure bromine produced less than the usual effect. For six days after the 18th the bromine was applied daily, and followed by yeast poultices. No ulceration occurred after the first application; but at the expiration of the time stated, a florid, healthy surface replaced the gangrenous one; the excavation was deep and extensive enough to contain a large egg. After this complication the wound filled up rapidly, the man received a furlough, but was enfeebled by the long continued discharge resulting from local necrosis.

CASE XIII. James Hogan, age 47, private, Co. A, 127th Pa. Vols., was struck at Fredericksburg, Va., December 13th, 1862, by a minie ball which comminuted his right tibia. A resection of six inches of the shaft was performed at a field hospital. The fibula was uninjured. A tedious and almost hopeless convalescence, and the removal of sequestra from both upper and lower extremities of the tibia, found him, after the closure of the extensive incision, in good health, and with only a very small granulating surface near the tubercle of the tibia unhealed. This was attacked by hospital gangrene, was treated ineffectually with nitric acid, and penetrated so deeply as to make the involvement of the knee-joint probable.

Two or three applications of pure bromine at once checked the destruc-

tive action, but not until an opening large enough to receive a hen's egg had been produced. The granulation was rapid; the constitutional symptoms of gangrene soon disappeared, and the man recovered with a perfectly useles leg, since a hiatus of eight inches remained between the two extremities of the tibia. He was sent home on Oct. 12th, 1863, in good health, his term of service having expired.

DOUGLAS HOSPITAL, WASHINGTON, D. C.

---

ART. VIII.—*Observations upon One Hundred Cases of Intermittent Fever in which the Sulphate of Cinchonia was used as a Substitute for Quinia.* By A. PAUL TURNER, M. D., one of the Physicians to the Howard Hospital and Infirmary for Incurables.

WHEN we consider the extremely limited regions to which the production of the desirable varieties of the Cinchona is confined, and the reckless destruction pursued in collecting it by those solely interested in an immediate pecuniary reward, and the utter neglect of the respective South American Governments to enforce the regulations necessary to its preservation, we may well feel assured that unless some available substitute for quinia be introduced, the supply is liable at any time to suddenly fail. So little interest in the subject is manifested in the regions from whence our supplies are now derived, that it is said in the collection arranged at the late International Exhibition at London, not a single specimen was placed there by the Spanish or South American States. In view of these facts, the British and Dutch Governments have been induced to establish nurseries for the cultivation of the Cinchona in their East India possessions. In carrying out the attempt, numerous difficulties are to be overcome, and it further remains to be ascertained, if even an apparent maturity be obtained, so far as all external characteristics are concerned, whether the bark possesses the full medicinal properties. To a certain degree the valued alkaloids in the Cinchona of the Indies may be in less quantity,<sup>1</sup> as the active resinoid principle of the hemp is almost wanting in those specimens cultivated elsewhere than the Indian Archipelago. Casting aside all this, we must admit that a considerable length of time will elapse, perhaps not less than twenty years, before a supply can be looked for from new sources, and an efficient substitute must, therefore, be procured, unless chemistry places at our disposal some method by which these desirable preparations can be directly formed. Notwithstanding we possess salicin, bebeerine, and the active principles of the oak, dogwood, and other indigenous plants, with copper, arsenic, etc. etc. of the mineral kingdom, all having more or less reputed antiperiodic properties, and useful in their

<sup>1</sup> [Recent investigations are said to show that the bark of the Cinchona trees raised in India is very rich in quinia.—EDITOR.]



proper places, yet it has always been desirable to secure one more energetic and certain in its action than those of the first class, without the well-known disadvantages attending the latter substances of not only being tardy in action, but requiring such care in administration as to cause their claims to be repudiated by many.

As early as 1821, when Pelletier and Caventou discovered that in Peruvian bark there existed another alkaloid besides quinia, separable from it, and having analogous chemical relations, they suggested that there might be a similar identity between their therapeutic properties, and inferred that it might be no less available as a febrifuge. The subject was accordingly investigated by Magendie, Gittermann, Chomel and others, who, after slight inquiry, rejected its pretensions as such an agent; the last-mentioned experimenter doing so after using it in one case only. After this extremely limited trial, little more attention was bestowed upon it, until inquiry was prosecuted with more vigour by Dr. Bally, in 1825, who succeeded in immediately checking twenty-five out of twenty-seven cases of intermittent fever, and even the other two yielded upon judicious perseverance in the same remedy. Other experimenters in Italy, France, and Germany, among whom were Mariani, Wutzer, Dufresne, Potier, and also Bardsley, of England, all reported in its favour, even when compared with quinia. In this country attention was specially directed towards the subject by Prof. Wm. Pepper (*American Journ. Med. Sciences*, January, 1853), who administered this substance with signal success, confirming all previous statements as to its efficacy, having promptly checked eleven out of fifteen cases of intermittent fever, and two of those remaining yielded to a second administration of the same febrifuge. The greater number of these cases were of many months' duration, attended with enlargement of the spleen, and more or less derangement of the general health, which would tend to make a successful result still more conspicuous.

The humble position reached by this article of the materia medica as a therapeutic agent, must not be attributed to the fact that it has been tried and found wanting, but rather to the tardiness of physicians in confiding in newly proposed medicinal agents. But another and more obvious reason is perhaps due to the fact that quinia has been found so effectual as a febrifuge, that there scarcely exists a hope of ever securing a more efficient one, and consequently so long as this can be readily procured, a substitute for it will meet with little attention. The demand for quinia has now not only increased for the cure of disease, but it is issued as a prophylactic to soldiers in the field, not only among our own in the Southern States, but among the armies of Europe stationed in the malarious regions of China, India, and Mexico. These increasing demands for consumption, and the non-increase but rather decline in supply of the material from whence it is derived, can of course have but one effect, that of making it more costly, and of urging us to seek an available substitute. In all

charitable institutions where it is desirable to reduce expense to the lowest point compatible with the object in view, an efficient substitute is urgently demanded. It was in view of this fact that I was induced to specially observe a certain number of well-defined cases of intermittent fever, presenting themselves at the Dispensary of the Howard Hospital, in hope that something positive could be ascertained as to the true value of the sulphate of cinchonia. The first case recorded was August 15th, and the last Oct. 25th, although during this interval there were not less than two hundred instances in the general register of the house, yet only those are specially recorded and embodied in this report as were well defined, and had been under no other immediate treatment. Where obscure cases afterwards assumed this character, or a more remittent form, the same agent was employed with equally satisfactory results. The epidemic was one of unusual violence and duration, many cases assuming a severe congestive form, with more or less visceral disturbance, but one of the most prominent features was the disturbance of the nervous system; the neuralgic symptoms were so prevalent, that not unfrequently, by their occurrence, the fever was anticipated some days before it assumed the decided form, and after the subsidence of everything connected with the febrile state, these general pains simulating rheumatism often appeared, not unfrequently affecting a special nerve or even one of its branches with a violent neuralgia, which yielded with the other symptoms to the antiperiodic.

1. *Mode of Experimenting.*—The febrifuge was administered at the onset before it was fully ascertained whether the fever was about to steadily proceed with its paroxysms, or whether, on the other hand, it would spontaneously disappear of itself, but as the same course is pursued where the substance used is of another variety, it will be seen that the comparison does not present that variance which might at first be supposed.

2. *Use, Formulæ, Mode of Administration, Duration of Use.*—In all instances the salt used was the disulphate of cinchonia, of known purity, directly from the laboratory. The smallest quantity given during a single intermission to arrest the paroxysms was five grains, to a child two years of age, suffering with a tertian form after having been troubled the entire summer with cholera infantum, and was in consequence much reduced in strength before the febrile condition appeared, with little appetite and irritable stomach. A slight purgative of hydrarg. cum creta was given as soon as the fever began to decline, then one and a half grain of the antiperiodic was administered every hour, until the above quantity had been taken. There was no return of the chill at the expected time, and a scarcely perceptible fever, probably due to some indiscretion in diet; from this time forward there was no return, although the general state of the system, which improved very slowly from the previous disorder, was one quite favourable for continuance of the disease. The maximum quantity used during a single

intermission was thirty grains, to a female aged 30 years, in doses of five grains every two hours; the only effect noticed aside from checking the paroxysms was considerable vertigo and buzzing of the ears, but no headache or other painful symptom. The largest dose given at one time was fifteen grains to a stout and apparently otherwise healthy man, three hours before the expected return of a paroxysm, which had been of unusual violence, lasting some hours, and succeeded by extreme gastric disturbance and general depression. He had previously experienced four attacks, each coming on at about 12 at noon, followed at 5 P. M. by the fever, which persisted during the night with active delirium until 6 the next morning, when general muscular pains harassed him until the hour for return of the succeeding cold stage. After a brisk purgative, which operated in two hours, the mentioned quantity of the febrifuge, suspended in tinct. lavand. c., was administered at once. This was followed by no nausea or other unpleasant symptom, except the fulness of the head which appeared about the expected time of return, but no chill or symptom of it was observed, except slight gastric uneasiness at the hour when vomiting had usually been troublesome. Three weeks afterwards there had been no return of the disorder, and he promised to visit us should another recur. In a female, aged 29 years, with a quotidian of one week's duration, giving rise to such disturbance of the system that she insisted upon immediate relief, and to effect this one scruple of the sulphate of cinchonia was given at two doses with an interval of one hour between them as soon as the febrile state declined. It was attended with no other disagreeable effect than the cerebral symptoms, which were not so distressing to the patient as those resulting from quinia, with whose properties in this respect she was familiar, having suffered each autumn from intermittent fever for some years past. The common dose for an adult was about three grains, repeated every hour until the desired quantity had been exhibited, which usually was one scruple. I now feel assured, however, that in many instances a less quantity will effect the desired result, but as this inference was drawn rather late, it was thought most judicious to continue as begun, that the relative effects between the different cases might not be thereby impaired.

As cinchonia is more soluble than any of the other salts obtained from barks, the most efficient mode of its administration was that of a solution with one of the mineral acids, usually the aromatic sulphuric, but it readily combines with tinct. ferri chlor., U. S. P., and in the proportion of two scruples to the ounce of the last may be used as a prophylactic in the dose of ten drops, in water, an hour before each meal. With organic acids it is no less soluble, and when desirable to combine with it the citrate or tartrate of iron, the citric or tartaric acids, respectively, will be found ready solvents. It may be given in pill or powder, but the solution is preferable. In using cinchonia in reference to the febrile state the same rule is to be followed as when quinia is prescribed, and in all cases an attempt was

made to begin its administration during the absence of fever, and so early that the last dose should precede the chill some two or three hours. This was the rule adopted, but, of course, in many instances it will be found impracticable, where larger doses at shorter intervals will be necessary, and in some instances the first portion was given during the declining fever of one paroxysm and the last at the commencement of the cold stage of another. In none did we observe the one prolonged or the other aggravated by such a course, and it has uniformly been our purpose to give the total quantity of the antiperiodic necessary during the intermission, instead of pursuing the course advocated by some of exhibiting certain quantities at stated periods until the commencement of the cold stage, then waiting until the succeeding intermission, and so on, until the desired effect is produced. In following this plan we have yet to see anything sufficient to cause us to pursue another. The duration of time over which the use of the alkaloid extended, varied, being discontinued as a usual thing as soon as the paroxysmal aspect was destroyed; it was then occasionally given at the end of six days to prevent a recurrence, as it is well known that all intermittents tend to return at the seventh, fourteenth, and twenty-first days. Hence a third of the original amount found necessary to arrest the progress of the paroxysms was repeated at each septenary period, and where this direction was carefully carried out, we do not remember more than two instances where a return was not prevented. One of these was a gardener, living in a marshy district, and when the quantity of the febrifuge was increased there was no return. The other was that of a female, aged 29 years, with a tertian of ten days' duration, which was expected to return at the stated day and hour, but it was very desirable to prevent, if possible, another paroxysm; five grains were given every hour until a scruple had been used; there was no return of the chill or fever. At the end of a week ten grains more were administered, but a paroxysm occurred the next day. A scruple in three grain doses was given to arrest the fever, which remained absent nine days, when it returned once more.

3. *General Accidents, Tolerance, etc. etc.*—Nausea and vomiting were observed to follow the use of this substance in five cases; two of these became more affected by continuing the dose, although one persisted in it after diminishing the quantity, and in the other no further attempt was made. The remaining three cases were children, in whom the gastric irritation was one of the most prominent and distressing symptoms, and as it soon subsided after an alkaline draught, it is scarcely proper, perhaps, to attribute it to the medicine.

Cephalalgia was quite prominent in six; one described it as acute in the frontal region, which was attended with a peculiar nausea, lasting some time, and returning after each dose; the cinchonia was not omitted on this account, but persevered in until all was used, after which there was neither return of the paroxysm nor headache. In another the

same symptom had previously occurred after the use of quinia, when it was more severe and enduring than after cinchonia. In reference to the peculiar assemblage of cerebral symptoms comprised under the term "cinchonism," it resulted in the majority of instances, but it was not observed that greater immunity was thereby secured in proportion as these signs were more marked or earlier evident. In one case the vertigo was so intense after twenty grains of this substance had been taken within ten hours, that the patient was unable to walk without falling, and she inquired if quinia was not the preparation given, as when this had been used by her on former occasions, the same effect had always been induced, but much more unpleasant from the severe pain attending it. This was remarked also by other parties.

The taste is not so bitter or durable as from quinia, and for this reason cinchonia can be administered to children where the former is stoutly refused. The impaired appetite and general feeling of *malaise* not unfrequently following the use of quinia, which to some is the most objectionable feature to its use, was not noticed to the same extent after cinchonia, and in some did not occur at all; on this account it may be preferred to other tonics of a similar character.

4. *Efficacy as an Antiperiodic.*—We previously remarked that the following cases, arranged for inspection in a tabular form, are those distinctly defined and recorded in reference to this feature alone; where the type is omitted and entered mixed, it is meant that at the beginning it was perhaps a quotidian, then merged into a tertian, and could not be so expressed without interfering with the assumed arrangement.

No.	Age.	Sex.	Type.	Number of paroxysms before treatment.	Quantity of cinchonia administered.	Number of paroxysms after medication.	Remarks.
1	20	Male	Tertian	Two	gr. xx.	None	Paroxysm on 4th day, but none after.
2	40	"	"	"	" xx.	"	
3	13	"	"	Three	" xv.	Two	
4	6	Female	Quotidian	"	" xv.	None	
5	23	"	"	One	" xx.	"	
6	25	Male	Tertian	Seven	" xx.	"	With severe neuralgia also.
7	23	Female	"	Five	" xx.	"	
8	20	"	"	Three	" xx.	One	
9	33	"	Quotidian	"	" xx.	None	
10	19	"	"	Eight	" xx.	"	
11	22	Male	Tertian	Four	" xx.	"	Recurring on alternate days.
12	28	"	Quotidian	Sixteen	" xx.	"	
13	16	"	Tertian	Three	" xv.	One	
14	8	"	Quotidian	Seven	" x.	None	
15	4	Female	"	Fourteen	" viij.	"	
16	6	"	Tertian	Two	" viij.	"	
17	40	Male	Quotidian	Six	" xx.	"	
18	5	"	Mixed	"	" x.	"	
19	36	"	Quotidian	Three	" xx.	Two	
20	11	"	"	Six	" x.	None	
21	8	"	"	Three	" viij.	"	
22	17	"	"	Four	" xx.	"	
23	7	Female	"	Five	" x.	"	
24	60	Male	"	Eleven	" xx.	One	
25	20	"	Quotidian	Four	" xx.	"	
26	30	"	"	Three	" xx.	None	

No.	Age.	Sex.	Type.	Number of paroxysms before treatment.	Quantity of cinchonia admin- istered.	Number of paroxysms after medication.	Remarks.
27	40	Male	Quotidian	Seventy	gr. xx.	None	
28	50	"	Tertian	"	" xx.	"	
29	55	"	"	Seven	" xx.	"	
30	14	Female	"	Twenty	" xv.	"	
31	28	Male	Quotidian	"	" xx.	One	
32	26	Female	Tertian	Seven	" xv.	"	Then none for 5 days when a single paroxysm occurred.
33	2	"	"	Six	" v.	None	
34	4	Male	"	"	" vj.	"	
35	32	"	Quotidian	Six	" xx.	"	
36	30	"	Tertian	Three	" xv.	"	
37	8	"	"	Six	" x.	"	
38	6	Female	Quotidian	Seven	" x.	One	
39	30	Male	"	Two	" xx.	None	
40	15	"	Tertian	Ten	" xv.	"	
41	30	"	Quotidian	Ten	" xx.	One	Severe neuralgia also.
42	15	"	"	Two	" xx.	Two	
43	30	"	Tertian	Three	" xx.	None	
44	40	Female	Mixed	"	" xx.	"	Very anæmic.
45	85	Male	Quotidian	Six	" x.	"	
46	38	"	"	Fifteen	" xx.	"	
47	50	"	Tertian	"	" xx.	"	Spleen very much enlarged.
48	11	"	"	Three	" x.	"	
49	50	"	Quotidian	Twelve	" xx.	"	
50	55	"	Tertian	Ten	" xx.	"	
51	3	"	Quotidian	Thirteen	" vj.	"	
52	18	Female	Tertian	Two	" xv.	"	
53	35	"	Quotidian	Seventy	" xx.	"	
54	40	"	Mixed	"	" xx.	"	
55	48	Male	Tertian	Three	" xx.	"	
56	37	Female	"	Two	" xxx.	"	Paroxysms very severe.
57	11	Male	"	Four	" x.	"	
58	15	"	Quotidian	One	" xx.	"	
59	50	"	Mixed	"	" xx.	Two	
60	46	"	Tertian	Seven	" xx.	None	Severe cephalalgia after the cinchonia.
61	22	"	"	Two	" xx.	"	
62	18	"	"	Four	" xx.	"	
63	29	Female	Quotidian	Three	" xx.	"	
64	36	Male	"	Three	" xx.	One	
65	9	"	"	Seven	" xv.	None	Hepatic and splenic enlarge- ment. Cinchonia without effect.
66	39	Female	Tertian	Six	" xx.	Several	
67	18	"	Quotidian	Eight	" xv.	None	
68	35	Male	"	"	" xx.	One	
69	22	"	Tertian	"	" xx.	None	
70	22	"	"	Three	" xx.	"	
71	19	"	Quotidian	Four	" xx.	"	
72	50	"	"	One	" xx.	"	
73	46	Female	Tertian	Four	" xx.	"	
74	10	Male	"	Three	" xv.	One	Chill was a slight one.
75	15	"	"	"	" xv.	Three	But none after.
76	16	Female	"	Four	" xv.	None	Cerebral symptoms very de- cided after the febrifuge.
77	58	Male	Mixed	"	" xx.	"	
78	15	"	Quotidian	Seven	" xv.	"	
79	13	"	"	Eight	" x.	"	
80	3	"	Tertian	Six	" x.	One	
81	8	"	"	Nine	" x.	None	
82	44	"	"	Seven	" xx.	"	
83	13	Female	"	Five	" xv.	"	
84	58	Male	"	"	" xx.	"	
85	48	Female	Quotidian	Five	" xx.	"	
86	8	"	"	Twelve	" x.	One	
87	23	"	Tertian	Six	" xx.	None	
88	28	Male	Quotidian	Five	" xx.	"	
89	15	"	"	Three	" xv.	One	
90	29	Female	Tertian	"	" xx.	None	Spleen much enlarged.
91	5	"	"	Two	" viij.	"	
92	28	Male	"	Six	" xx.	"	
93	35	"	"	Three	" xx.	"	
94	29	"	"	Nine	" xx.	One	
95	55	"	Quotidian	Twelve	" xx.	None	
96	9	Female	"	Two	" x.	"	
97	16	Male	"	Three	" xv.	"	
98	29	"	Tertian	"	" xx.	"	
99	30	"	Quotidian	"	" xx.	"	
100	5	Female	"	Seven	" x.	One	

The result thus calculated gives :—

Fevers cut short—i. e., which have not presented a single paroxysm from the commencement of medication . . . . .	79 per cent.
Fevers which have presented one paroxysm, but not two after the commencement of medication . . . . .	15 “
Fevers which have presented two, but not more paroxysms . . . . .	4 “
Fevers which have presented three or more paroxysms . . . . .	1 “
Fevers which cannot be introduced into these categories, but must be regarded as not cut short. . . . .	1 “
	<hr/> 100

It will be perceived that seventy-nine per cent. of the fevers were cut short after the administration of the febrifuge, and in those instances where a single paroxysm afterwards occurred, an examination of the preceding table will show that nine were of a quotidian form, and reference to the full notes in my possession show that in six of these, the use of the antiperiodic was delayed until there was not time to insure the requisite amount being taken before the hour for the occurrence of the chill, and had this not been the case, the first class would have perceptibly increased. In one case only was it found that the sulphate of cinchonia was without effect in sooner or later arresting the progress of the disease.

5. *Relapse*.—In preventing this we did not find cinchonia less efficacious than quinia, and when care was taken to give a certain portion at the time a return might be expected, it was effectually prevented; but as to the precise proportion in which the relapse would have occurred we have no positive means of knowing, since those affected were of the usual class of outdoor patients, with others frequently dependent upon them for support, and living in the outskirts of the city, constantly exposed to malarial emanations, and that all danger of a return might be avoided as much as possible, it was deemed best, under the circumstances, to place them upon the use of tonics, etc., so that any conclusion is quite unreliable upon this point.

*General Deductions*.—In several of the above instances quinia had been used with the effect of arresting the progress of the disease for a time, until the approach of one of the septenary periods, when the paroxysms returned to the number shown in the column, and in more than one case this occurred two or three times, which was not the case after administration of cinchonia. Undue importance must not be attached to this fact, causing us to draw the inference that the relative value of cinchonia is *greater* than that of quinia, but rather to the attention given to recuperation of the general health and abatement of the epidemic influence. But an extensive use of both substances justifies the statement that, in slightly larger doses, cinchonia is equal as an antiperiodic to quinia; so much so, that, in private practice where either can be procured, I order the former with as much assurance of

success as if the latter were used. It is more soluble; tends less to derange the gastric functions; begets less of the malaise; the cephalic symptoms are less violent and enduring, and it is not followed by any special unpleasant effect more than is observed to ensue after use of quinia, and it may be administered in all cases and under all circumstances where this substance is indicated. In saying this, we do not profess to have observed anything new in its mode of use, administration, or the effects arising from it, more than previously detailed by Bally, Bardsley, Pepper, and others who have impartially investigated its properties; but after a more extensive series of experiments, especially in intermittent fever, we can confirm the results obtained by them.

In conclusion, we hope that others will be prompted to extend to it the careful consideration demanded by the subject, and doubt not but all said in its favour will in essential particulars be confirmed.

---

ART. IX.—*Miasmatic Typhoid Fever*. By JAMES J. LEVICK, M. D., one of the Physicians of Pennsylvania Hospital. (Extract from a paper read before the Philadelphia County Medical Society, October 14, 1863.)

Without discussing the question of the identity or non-identity of typhus and typhoid fevers, I propose briefly, in this paper, to direct attention to some of those modifications of typhoid fever which are developed by the peculiar antecedents of the individuals thus affected. Reference is not now made to those cases which, from some personal idiosyncrasy, present occasional peculiarities, such as may be seen in the walking cases of this disease, or in those instances in which the cerebral or pulmonic symptoms are so prominent as to mask the ordinary enteric phenomena; but to those in which there is associated with the ordinary cause of the disease a miasmatic or other specific poison, the coexistence of which superadds to the ordinary symptoms of the disease, phenomena of its own production. I do not mean by this to imply that necessarily a hybrid disease is produced; but believe that in some instances, at least, the two diseases run their course together, side by side, to some extent modifying each other, but not inevitably losing the individuality of either.

This doctrine of the coexistence of specific morbid poisons is in direct opposition to the teachings of the earlier writers. John Hunter distinctly states that "no two fevers can exist in the same constitution, nor two local diseases in the same part at the same time." That this opinion of Hunter is erroneous has been clearly demonstrated by Ring, by Marson,



and more recently by Murchison. Marson<sup>1</sup> adduces numerous instances of the simultaneous existence of variola and scarlatina, variola and rubeola. Ring<sup>2</sup> reports the coexistence of smallpox, measles, and whooping-cough; Murchison,<sup>3</sup> numerous instances of smallpox and scarlatina, as well as cases in which typhus and typhoid (or, as he calls it, *pythogenic*) fever coexisted.

Although it has thus been shown that the doctrine of Hunter is untenable, there are yet not a few in our profession who hold that there exists a special antagonism between the typhoid fever and the miasmatic fever poisons. Dr. Murchison<sup>4</sup> quotes numerous authorities on this subject, and refers to the writings of M. Boudin and M. Ancelon, who have largely investigated this subject. Another French writer, M. Thirial,<sup>5</sup> has written a memoir on this antagonism. Murchison very justly maintains that the facts recorded by these writers so far from proving an antagonism rather suggest a similarity of origin of the two fevers, and I am not sure that they do not prove that the one may act as the determining cause of the other. Be this as it may, I feel very confident that the two poisons are often co-operating in the same individual, just as we have cases of miasmatic fever associated with pneumonia, with dysentery, and other diseases.

After having been accustomed for many years to treat the ordinary form of typhoid fever, my attention was arrested in the early part of last year by the occurrence of a series of cases which, while presenting the ordinary phenomena of typhoid fever, had superadded to these many of the symptoms of well-marked miasmatic remittent fever. These cases were characterized by the suddenness of the attack, by the intense pain in the head and back of the neck, by the regularly periodical remission and exacerbation of the fever, and by its amenability to quinia. I have ventured to call such cases *Miasmatic-typhoid fever*, preferring this term to that of *malarial*, for although etymologically the distinction will not hold, yet by common consent in this country the term miasmatic is accepted as belonging to that form of poison which is believed to be due to paludal exhalations; while the term *malaria* (*bad air*) applies with especial propriety to what is now regarded by some English authorities as the specific cause of typhoid, or, as they call it, *pythogenic* fever.

In some remarks made at the Pennsylvania Hospital, June 7th, 1862,

<sup>1</sup> Marson on the Coexistence of Variola and Scarlatina. (Med.-Chir. Trans., vol. xxx. p. 121.)

<sup>2</sup> See Williams on Morbid Poisons, vol. i. p. 211.

<sup>3</sup> Murchison on the Coexistence of Specific Morbid Poisons. (Brit. and For. Med.-Chir. Review, vol. xxvi. p. 178.)

<sup>4</sup> Murchison on Continued Fever, p. 421, London, 1862.

<sup>5</sup> De l'antagonisme entre la fièvre typhoïde et les maladies graves en général, &c., par le Docteur H. Thirial, Paris, 1855.

which were published at that time, I gave a detailed clinical account of one group of these cases. I shall, therefore, content myself here by giving, in a condensed form, a summary of the observations then made. That these were cases of typhoid fever was shown by the fact that in every instance, even in the mildest, was found the characteristic eruption. That there was disease of Peyer's glands was inferable from the fact that diarrhoea was present in every case, or was readily induced by small doses of cathartic medicine, a teaspoonful of castor oil producing five alvine passages.

In some of these cases the attack was gradual, a sort of imperfectly developed stage existing for a week or longer; the patient able to move about, but with a little diarrhoea; pretty well in the morning, but with severe headache and some fever every evening, with restless, uncomfortable nights. In other instances the attack began suddenly, with a chilliness and intense "splitting" pain in the head, unlike the headache of typhoid fever, which is dull and heavy. A slight cough, with the usual bronchitic râles, was noticed in nearly all the cases referred to. The remittent character of some of these cases in their forming stages has been already alluded to; in all of them the paroxysmal character was strongly developed, a marked exacerbation occurring in the latter part of the day or evening, the fever passing off towards morning, and the apyrexia ushered in with as profuse sweating as is witnessed in the most decided cases of miasmatic fever. I am well aware that a partial subsidence occurs in ordinary typhoid fever, but the exacerbation and remission of the miasmatic typhoid fever bear no resemblance to this temporary subsidence in "continued fever." The severe headache, which has already been noticed, was one of the most constant symptoms—described by the patient as "splitting," "battering," and the like; it appears to have been one of the chief sources of his discomfort, though generally associated with it were intense pains in the back of the neck and the muscles between the shoulders, and in some instances universal aching. The tongue was generally covered with a loose yellowish-white fur, and in all the cases to which I now refer did not present the dry, brown condition which is so often seen in the advanced stages of typhoid fever. The pulse, though in two instances reaching 120, was rarely above 90, and in all was soft, and in none alarmingly feeble. There was in these cases no great tympanites. The mental condition of these patients was unlike that of ordinary typhoid fever, in being free from the dulness or hebetude which usually attends this disease. Though indisposed to any active mental exertion, all these patients retained their interest in the events transpiring around them, and gave intelligent responses to questions put to them. In none of them was there well-marked delirium. These were the phenomena which presented themselves in all the cases of miasmatic-typhoid fever which were unassociated with the graver complications hereafter to be alluded to. Merely considering the facts which have been mentioned, we might readily infer that this exposure to the double poison of miasmatic and

typhoid fevers had developed a new disease, a *tertium quid*, as it were, in which the elementary constituents were so intimately united as to have developed a new and distinct compound body, analogous to what occurs in chemical combinations. But it is an interesting fact in this connection, that the administration of the usual remedy in remittent fever, sulphate of quinia, while it always promptly relieved and arrested the miasmatic fever element of the disease, did not promptly cure the patient; it mitigated the symptoms, but convalescence did not begin for a week or more; the enteric fever element continued, and this disease ran its course. But what was also highly interesting was the fact that the addition of the miasmatic fever element did not render the disease more serious than typhoid fever in its ordinary form. On the contrary, either this complication, or the means taken to combat it, seemed to render the disorder more tractable and less fatal. It should before this have been mentioned that all these illustrations of miasmatic typhoid fever occurred among soldiers or sailors engaged in our national service —sailors who had been attached to vessels carrying troops to Fortress Monroe and the coast of North Carolina; soldiers in the army of the Potomac, before and at the beginning of the Peninsular campaign.<sup>1</sup>

Such was the character of the cases of miasmatic typhoid fever coming under notice in the spring and early summer months of last year. On the 7th of July, 1862, there arrived at the Pennsylvania Hospital, direct from

<sup>1</sup> More recently my attention has been attracted to another interesting fact in connection with this form of disease, which may be here briefly alluded to. During the late invasion of our State, it is well known that large numbers of patriotic young men entered the ranks of the State militia, and endured the hardships of a brief but victorious campaign. The health of these soldiers during their active service, for the most part, was excellent; but a week or more *after their return* very many of them were seized with this fever, and in some I am told it proved fatal. A more remarkable illustration of the same occurred to the members of *Hasting's Battery*, of this city. These young men offered their services to the President in the summer of 1862 for one year, which were accepted. They were attached to the army of the Potomac, and shared its varied fortunes, hardships, and exposures. At the expiration of the twelve months they were mustered out of service. Up to this time the health of the regiment had been excellent. But *on their return to their homes* in Philadelphia numbers of them were seized with a modified form of typhoid fever, which, though grave, has I believe in no instance proved fatal. Andral, in his earliest account of typhoid fever, makes mention of the fact that medical students coming to Paris for the first time were very liable to be attacked within a few weeks of their arrival with typhoid fever. The same has been noticed in London. Every one who has had much to do with students of medicine coming to our city from North Carolina and other miasmatic regions, well knows that nothing was more common than for them to be attacked a fortnight or sooner after arrival here with a severe form of bilious remittent fever, and this too after having lived safely all their lives long in the midst of the miasmatic poison. It is at least an interesting coincidence that the same fact obtains in the form of fever which we are now considering.

the army of the Potomac, twenty-seven cases of fever, presenting very different phenomena. These were men who had accompanied the army in its march along the Peninsula; had lain before Yorktown, had toiled in the swamps of the Chickahominy, and either had been active participants in the seven days' fight, or had been in the hospitals at the White House and elsewhere in this vicinity. They represented almost all forms of typhoid fever. Some were cases well described in my previous remarks, though of a more severe type. Others were instances in which, with the ordinary phenomena of typhoid fever, the *tache*, diarrhoea, &c., were associated those of pernicious congestive remittent fever, as evinced by the shrivelled washerwoman's fingers, copious serous discharges, not unlike those of Asiatic cholera, the colliquative sweats, and other symptoms of extreme exhaustion. Still another class were individuals in whom, to the ordinary typhoid fever symptoms, were added those of great blood poisoning, cases presenting the true typhoid, *i. e.*, typhus-like symptoms, as shown by extreme emaciation, excessive nervous tremors, delirium, sordes, excessive irritability of stomach and vomiting of a dark greenish fluid, diarrhoea, involuntary discharges from the bowels, petechiæ, vibices, sloughing bed sores, hemorrhage from the bowels, and in a large number of cases ending in death. The contrast between the mortality of ordinary typhoid fever, and as thus modified, was strikingly impressed on the writer's mind by the fact that of twenty-nine cases of typhoid fever treated by him during the months of April, May, and June, uncomplicated, except by those lesions which usually occur, all recovered; while of twenty-seven cases of typhoid fever brought under his care from the army, in which the complication existed of miasmatic poison, the scorbutic diathesis, the typhous condition, nine, *i. e.*, one-third, died—four of the number not living long enough to be put on any regular treatment.

Indeed it is difficult to paint a more melancholy picture than that which these poor creatures exhibited. Brought in crowded transports, they arrived in our city during the intense heat of July, and thence over the rough stones were conveyed to our hospital. With constitutions broken down by the life they had recently led, necessarily deprived of the kind of food to which their previous lives had accustomed them, drinking the water of the James, or the viler water of the Chickahominy, wearing both by day and night the same apparel; ill in crowded hospitals, to be transferred to more crowded transport ships—nothing was wanting to fill up the catalogue of causes which result in the development of genuine typhus fever. And yet I cannot recall one case in which the true typhus fever rash exhibited itself, nor was there, so far as I could learn, a single instance in which the fever was communicated by contagion to any one in the hospital. Petechiæ, passive hemorrhages, there were in melancholy abundance, but not the true rubeoloid rash. And yet, that the condition of the blood was very much that of true typhus, there can be no doubt; the injected eye, the acute delirium, or

the profound-coma, all corresponded to this, as well as did the other phenomena before described. There was, indeed, in these cases a third morbid agent—a scorbutic or typhous condition of the blood associated with the true typhoid and miasmatic poisons.

Those who are familiar with the celebrated Walcheren fever, cannot fail to be struck with the remarkable correspondence, I had almost said identity, existing between this and the fever of the Chickahominy. This ill-starred expedition, the memory of which still casts its dark shadow over many an English home, left England 40,000 strong on the 28th of July, 1809, and sailed for the Scheldt.<sup>1</sup> The soldiers, exposed to the miasm of these flat, marshy countries, became affected to a fearful extent with a violent form of fever. Thousands of them returned to England broken down in health. A part of the army remained to garrison the island of Walcheren, “an island of all others the most unhealthy.” An idea may be formed of the unhealthiness of the soldiers, when it is stated that on the 14th of September, of 15,000 men in Walcheren, 10,000 were actually sick, the deaths averaging 20 to 30 per day. One week’s return gave five officers and 375 men dead (DAVIS’ *View of the Fever of Walcheren*, London, 1810, page 15). The type of this fever has generally been regarded as that of the miasmatic remittent, but that in very many instances it was really that of the miasmatic typhoid fever in its worst form, I think there can be no doubt. This is confirmed by the statement of Dawson, who has left us an interesting account of the cases coming under his care. He says of it: “The fevers were of the continued and intermittent kind, and in every case there was an unaccountable disposition in the one to degenerate into the other, and it was a circumstance which very frequently took place.”<sup>2</sup> This writer gives, among the symptoms attending the Walcheren fever, in the severe forms, a brown and furred tongue, a convulsive tremor of the body, great fulness of the abdomen with tenderness on pressure, violent and constant pain in the head, and delirium, pulmonary irritation, diarrhoea, the sudden occurrence (doubtless from perforation) of fatal peritonitis. After death, it is recorded by Davis and by Dawson, among other lesions, that “in the ileum and jejunum were little ragged ulcers, excavated in the middle, resembling chancres, or one large, or a succession of small ulcers spreading wide upon and deep into the coats of the intestine.” Both Davis and Dawson note tumefaction, and in some instances suppuration of the mesenteric glands as a not infrequent pathological condition of Walcheren fever. This, it will be remembered, was more than twenty years before Louis had pointed out these as the post-mortem lesions of typhoid fever. These writers fall into the error of treating of diarrhoea and dysentery as distinct diseases in these cases, instead of regarding each of them, and especially the former,

<sup>1</sup> This was exclusive of a large naval force attached to the expedition.

<sup>2</sup> Observations on the Walcheren Diseases, &c. By G. P. Dawson, London, 1810.

as in many instances but an attendant of the general febrile disorder. This mistake occurs in practice much more frequently than is suspected. Patients were often sent to us as cases of "diarrhœa" which, upon careful inspection of the abdomen, were readily recognized as cases of typhoid fever with its characteristic eruption.

I trust, on the other hand, not to be understood by this to assert that every case of diarrhœa with febrile symptoms, occurring under the circumstances I have related, was an instance of typhoid fever. That this was not the case was proved by the phenomena during life, and the appearances after death. In the few autopsies made at the Pennsylvania Hospital, the cases recognized as typhoid fever presented the anatomical lesions usually found in this disease, viz., enlargement of Peyer's glands, increasing in thickness lower down the bowel, the lowest in various degrees of ulceration, the solitary glands enlarged, as were also those of the mesentery, the spleen softened, and the liver in some instances engorged. This corresponds with the description given me by my friend, Professor Leidy, whose investigations as Pathologist to the West Philadelphia Military Hospital were of the most extensive and scientific character. But in cases of Chickahominy diarrhœa, as it was called, without the *tache* of typhoid fever, a different set of post-mortem appearances presented. In these, he tells me, were found patches of inflammation in the ileum; while in the glands of Peyer and the solitary glands there was invariably found a deposit of a black colour, but no ulceration. There was inflammation of the caput coli and sigmoid flexure, but none of the transverse colon. In one-fourth of these cases there was *discoloration* of the supra-renal capsules. The spleen was so impoverished of blood that its intimate structure could be more readily studied than usual. The lungs and heart were in appearance natural; there was no diminution in the relative proportion of the white and red corpuscles of the blood, but a great diminution or alteration in the whole amount.

In concluding these remarks on some of the modifications of typhoid fever, I wish it to be distinctly understood that no claim to originality is made in thus recognizing this association of the two poisons in the disease just treated of. I am well aware that its occasional existence has been noticed by our own writers, and its frequent concurrence by physicians in our Southern and Western States, where the elements for its development are more constant than they are with us. Dr. Drake, in his work on the Principal Diseases of the Interior Valley of North America—a monument of medical industry—describes what he calls *remitto-typhus*, not recognizing the distinction between typhus and typhoid fevers, and mentions the interesting fact, if it be such, that the union of the miasmatic and typhus fevers occurs only between the latter and the remittent, not with the intermittent. He adds what seems to conflict with this statement, but what my own observations already reported confirm, that these poisons combine in all

proportions, and that as the elements vary in their proportions, so the phenomena must vary. So, too, Dr. Wooten, of Lownsboro', Alabama, writes to Dr. Bartlett many years ago, "I have often seen typhoid fever and remittent existing together, and I have cured the paroxysmal exacerbation whilst the disease essential to typhoid fever continued." Numerous other authorities might be quoted. My own observations, however, were made at the bedside, and recorded before these two descriptions came under my notice. The especial object of this paper is to call attention to the fact that this coexistence is not merely a rare phenomenon, but one of frequent occurrence. While numerous illustrations in groups of cases might be adduced as confirmatory of this fact, it is its sporadic occurrence which it is most important we should bear in mind. When the same symptoms attack large numbers of people, our attention is arrested, and we are better prepared to encounter them; the single individual cases steal quietly upon us, and often find us off our guard. Although the instances here adduced have all been from among our soldiers, examples have recently occurred in private practice of the same facts. There can be no doubt that there exists at the present time in our city and vicinity a strongly developed miasmatic influence. It shows itself not merely in its familiar garb of intermittent and remittent fevers, but attaches itself to almost every other disease, if not lending its full livery, at least casting its mantle upon them. Cases even of cholera infantum have been noticed this autumn as thus disguised. So prominent are the miasmatic fever symptoms, and so amenable to quinia, that unless we are on the watch for the typhoid fever element it will for a time escape notice. In the instances under the writer's care during the last month there has been no decided diarrhoea, no especial sensitiveness of the bowels until discovered by the therapeutic test. In these cases, too, the mind has been bright and active, with none of the hebetude of typhoid fever. These cases have taught him the lesson not to be led astray in his diagnosis of fever by the occurrence of well-marked exacerbations and remissions, nor to suppose that a fever is purely miasmatic because the grave symptoms disappear under the use of quinia, but rather in all fevers, other than the ephemera, to search carefully, day after day, for the spots of typhoid fever; to sedulously avoid the use of all active purgatives, and in every instance, during the first week or two, to keep his patients exclusively on the use of liquid food, lest, by the sudden occurrence of fatal perforation of the intestine, when it is too late he may be aroused to a painful consciousness of the fact that he has been treating, not a case of simple remittent, but of *Miasmatic typhoid fever*.

Oct. 14th, 1863.

**ART. X.—Loss (*Hysterical*) of Speech and Hearing successfully treated by the Inhalation of Ether.** Reported by JAMES H. HUTCHINSON, M. D., one of the Physicians to the Episcopal Hospital.

C. C., a German girl, aged 20 years, was admitted to the hospital September 22d, on account of entire loss of speech, which had occurred ten days previously. Complete deafness supervened two weeks after her admission.

The history of the case is as follows :—

She had always had good health up to two and a half years ago, when she was about to leave Germany for this country. At that time she had a violent quarrel with her fellow travellers, which gave rise to a hemorrhage from the lungs. During the voyage she had several convulsions; but upon her arrival in this country she was sufficiently well to take the place of cook in a private family, and continued in good health, with short interruptions, up to September of last year.

I found her in the wards when I took charge of them at the beginning of the year. I learned that she had had but few convulsions while in the hospital, and that the usual remedies had been tried without relieving her condition. Electricity, the various tonics, nux vomica, and, lastly, sulphate of anilin, had all been resorted to without benefit. During all this time her only means of communicating with others was by means of a slate.

I was anxious to discover whether the loss of speech and of hearing was in any degree feigned, and with that view directed the resident physician to administer ether to her by inhalation, believing that if such were the case she would utter sounds, if not words, as she came under the influence of the anæsthetic. The result, however, was different from what I had expected.

The ether threw her into a slight convulsion, from which she soon recovered, having entirely regained her hearing.

Two days subsequently I directed the experiment to be repeated. Upon recovering her consciousness she was able to say "mamma," and to make various inarticulate sounds.

She was a third time (three days later) placed under the influence of ether, with the following curious result: that of recovery of speech and loss of hearing.

A fourth etherization produced no immediate result; but in the course of a few days she was able first to hear loud noises, and later to understand what was said when spoken in a loud tone of voice. The improvement after this was very rapid, and by the middle of January her recovery was complete.

She was retained until the beginning of February for observation; but as she continued quite well she was discharged at this time at her own request.

Her joy at her recovery may be well imagined, as all hope had been abandoned by herself and friends, by whom application had been made to the managers of the deaf and dumb asylum for her admission to that institution.



ART. XI.—*Cerebro-Spinal Meningitis*. By A. P. MORRILL, M. D.,  
of Memphis, Tenn.

THE disease to which this name has been given made its appearance among the negroes brought to Memphis by the Federal army, in the fall of 1862, and continued to prevail among them during all the succeeding winter, but to what extent, and with what amount of fatality, I am unable to say, as no report has been made of it by those having them in charge. The only cases I saw were among the negroes permitted to remain in the city, many of whom I visited, and for several of whom I prescribed.

The symptoms of the disease were mostly those mentioned by Dr. Condie in his edition of *Barlow's Practice*; but in some cases the tetanic symptoms were not severe. The worst cases, and the largest number, were among youths of both sexes, from ten to fourteen years of age, although many adults were attacked, and some very old negroes. I saw only one case among the white population, which was that of a boy, fourteen years old, a patient of Dr. Pittman's, whose spine was bent backwards in a constantly increasing curve for ten or twelve days, when he died.

Various plans of treatment were adopted, but I heard of no case of recovery. Indeed, the negroes were badly cared for, and they received only a small amount of medical attention. I saw several cases in which quinia was freely given; others were treated mostly with mercurials; some were cupped and blistered; purgatives, antimonials, and excitants were variously employed, and opiates were very freely used. Death ensued in from three to fifteen days.

My attention was called to the case of a mulatto girl, about twelve years old, who had been suffering with the disease for four or five days. Her head was set firmly back, and her whole spine was curved and rigid. Her skin and extremities were cold, the pupils of her eyes dilated, her pulse 140, and feeble. She was delirious and exceedingly restless, and so insensible to the effect of heat that it had become necessary to employ force to keep her out of the fire. The treatment had consisted in the use of purgatives, opiates, sinapisms, with a blister along the spinal column. Believing the disease to be one of disordered innervation, I prescribed tincture of aconite, in such doses as to produce some degree of toxical effect, repeated every three hours; and in twenty-four hours she was greatly relieved; her senses had returned; her spine was less curved and rigid; she was able to sit up; and she showed signs of returning appetite. The continuance of this remedy for three or four days, with an occasional dose of calomel, gave entire relief, and I ceased to visit the patient. But ten days subsequently she suffered a relapse, and died without medical treatment.

The succeeding winter, 1863-4, the disease appeared among the blacks

again, and a case occurring in my own house enabled me to test the efficacy of aconite once more. The subject of this was a mulatto boy, twelve years old, who came to me one morning with his head set firmly back and drawn a little to one side, his pulse much quickened, his tongue heavily coated, and complaining of violent pain in his legs. I gave him a scruple of calomel, and put him on a course of aconite in full doses, repeated every three hours. The pulse was soon reduced to 70, and the bowels well purged. Calomel in purgative doses was given daily, and he improved slowly until about the twelfth day, when I found him entirely relieved, and he took no medicine afterward. The only external application made was a liniment made strong with oil of amber and tincture of aconite.

The effect of aconite in these cases is some evidence, perhaps, that this is a disease of nervous irritation, requiring the free use of narcotic remedies. It may be that other articles of this class may answer a better purpose, but I am well convinced that opiates are injurious. The digestive organs are always greatly disordered, with impaired and vitiated secretions; and hence the necessity for the use of calomel. I doubt whether benefit has been derived in any case from bloodletting, either general or local.

Although the disease has been confined mostly to negroes, in Memphis and the vicinity, in some other localities it is said to have prevailed principally among the white population. Whether affecting the one or the other, it must be ranked among the most fatal diseases, and any successful practice in its treatment is of importance. This is my apology for making this report.

---

ART. XII.—*Case of Pott's Abscess of the Brain—Trephining—Necrosis and Removal of the Right Parietal and part of the Frontal Bones—Recovery.* Reported by H. RAPHAEL, M. D., House Surgeon, Bellevue Hospital.

THOMAS LAUDER, æt. 24, single, born in England, ship's steward, was always temperate, enjoyed good health, and presented no symptoms of syphilitic or any other specific disease. On the 12th of Dec., 1862, while partaking in an affray, he was struck on the head with the edge of a shovel, which stunned him for a time and produced a lacerated wound of the scalp, about two inches in length, over the left occipito-parietal suture. For this he was treated at the N. Y. Hospital, and was soon discharged, cured. In a few days intense headache supervened, and the patient was admitted to this hospital on the 24th of Dec., 1862, suffering from severe pain in the head and intermittent delirium.

The symptoms were relieved by the use of leeches to the temples and blisters at the nape of the neck. The relief, however, was only temporary, and the patient grew worse daily. Vomiting and intolerance of light and

sound came on; these became worse, and on Dec. 31st periods of unconscious stupor began to alternate with delirium; each of these symptoms lasting for about an hour. As yet sensation was not abolished.

*Jan. 2.* The attending periods of stupor deepened into coma and encroached upon the periods of the delirium. Pulse 130 per minute, full and strong; pupils contracted; skin hot and dry. A large puffy tumour of the scalp was now developed, dissecting up the entire scalp from the calvarium and crepitating to the feel, being emphysematous. At 8 P. M. to-day, Dr. Stephen Smith made a free incision, crucial, into the scalp, and applied a Gault's trephine on the right parietal bone close to the occipito-parietal suture. A large quantity of fetid and gaseous pus escaped from beneath the scalp. There was some superficial necrosis of the bone, and on removing the disk of bone with the trephine a greenish, dirty-looking pus, about half an ounce in quantity, oozed out from between the meninges and cranium. The patient was conscious at the time of the operation, and complained loudly of the pain inflicted on him. Several ounces of blood were lost during the operation, and his pulse fell from 130 to 85 beats per minute. The coma and delirium disappeared, and the patient expressed himself relieved, and slept some during the night. Cold water dressing was applied to the head.

*3d.* Coma reappeared to-day; this time it is attended with puffing of the cheeks during expirations. Pulse 100. Dr. Smith again trephined the right parietal bone close to the former trephining, but no pus was found. The pulsation of the brain could be easily seen through the openings in the cranium.

*4th.* Ordered a cathartic of *ol. tigilii* to be given, which operated freely. The paralysis of the left side has disappeared to-day; otherwise there is no change.

*5th.* Patient experiences some difficulty in deglutition, compelling him to partake of nourishment very sparingly.

*6th.* The difficulty at deglutition has disappeared, otherwise he is about the same.

*7th.* Patient was attacked to-day with delirium and stupor, which alternate; the paralysis which had disappeared after the trephining has again affected the left side; complains also of headache. Ordered *ol. tigilii*, *gtt. ij* in *ol. ricini*,  $\mathfrak{z}\mathfrak{j}$ . This produced several watery evacuations.

*8th.* The delirium and stupor have subsided, has but little headache, and says he is much better.

*10th.* Patient is considerably worse to-day than he has been for the last two days. Passed a sleepless night, is now delirious, and his pulse is 105. Ordered *pot. iod.*, *gr. x*, three times daily, and *tr. aconiti rad.*, *gtt. ij* every hour.

*11th.* Has slept the major part of last night. Pulse 85, and says he is much better.

*12th.* Patient is decidedly better to-day than he has been for the last few days. The paralyzed arm and leg have regained their motive power; sensation is perfect over the whole body; answers questions coherently; appetite fair, and pulse 84.

*13th.* Discovered a puffy tumour on the right temple extending over the right half of the forehead down to the eyebrow, and behind to the mastoid process. The contents of this tumour were similar in character to that of the primary abscess of the scalp—containing pus and air.

15th. Another collection of matter formed over the centre of the forehead. A large quantity of pus and air was evacuated from the abscess.

16th. No change.

17th. Had a very bad night; was sleepless and moaned constantly; and this morning found another fluctuating tumour over the forehead. The evacuation of this abscess gave instant relief.

19th. Patient is about the same. The pulse, however, is full and strong, and 106 per minute, for which the aconite was again prescribed till the pulse was reduced to 80.

20th. Much improved to-day. Sat up in bed for some time. Appetite good; pulse 80.

22d. Patient's condition is not as good to-day as it was at last record. Pulse 114; complains of headache, and is drowsy. Ordered three leeches to each temple, a brisk cathartic, and the aconite in two drop doses every hour.

23d. Much better. The cephalalgia is less intense; the drowsiness is gone; pulse 88.

24th. No change.

25th. Febrile symptoms have again developed themselves. Pulse 112, cephalalgia, with hemiopia. These symptoms again subsided under a moderately antiphlogistic treatment.

27th. No change in the patient's condition to-day.

28th. The patient is to-day improving.

31st. He is somewhat worse to-day; is restless and irritable. Pulse 120. Ordered a cathartic with the other adjuvants, and nothing stimulating was allowed.

Feb. 1. Patient is about the same as yesterday.

3d. At the suggestion of Dr. Smith the exts. of belladonna and hyoscyamus, gr. ss of the former to gr. ij of the latter, were ordered three times daily.

4th. Patient complains of dryness of the throat. Pupils are dilated to such an extent that he is unable to see anything. Suspended the use of belladonna and gave the extract of hyoscyamus alone. Opened a small abscess on the forehead over the right eye.

7th. Patient informs me that he had a chill during the night, and felt very cold, and that his skin was burning hot afterwards. His pulse now is 135; pupils still dilated; but his throat is less affected than it was. Ordered a turpentine enemata and the tr. aconite, gtt. j, every hour.

8th. Better to-day; pulse 85; no headache; passed a good night, and is bright and cheerful.

9th. Patient's pulse is remarkably weak and rapid to-day. Ventured to give him stimulus, about 3ss every three hours, and as a tonic the preparation of iron; also pot. chlor. ʒiij, tr. cinchona C, syr. cort. aurant, aa ʒij, aqua ʒiv, a tablespoonful three times daily.

28th. Granulations have sprung up on the dura mater over the trephined spaces, and as these reach the level of the calvarium they join with the granulations from the edges of the divided scalp.

March 5. Again complains of frontal headache. Pupils dilated; pulse normal; skin moist and cool. Ordered an enemata of ol. terebinth. and pot. iod., gr. x, three times daily.

10th. Has had no headache during the last three days, but complained again to-day of it. Relieved by the same remedies as on former occasions.

18th. Nothing of note occurred since last record. At 6 P. M. to-day was

called to see patient, and found him labouring in convulsions, epileptiform in character. Extremities contracted; pupils enormously dilated, and puffing of the cheeks at expirations. The patient was put on low diet, his stimulus was cut off. Pot. iod., gr. v, three times a day was ordered.

19th. Slept well during the night, and was very comfortable this morning, but after eating a hearty breakfast he had another attack; this one, however, was not near so severe as the first.

30th. Patient was free from these attacks till last night, when he had several slight convulsions, which left him partially paralyzed on the left side. Ordered a pill containing ext. belladonna, gr.  $\frac{1}{2}$ , ext. hyoscyam., gr. j, three times a day.

April 4. Had again several convulsions during the night.

5th. These attacks again recurred to-day. Ordered a two gr. pill of zinci valerianati three times a day.

May 1. Has been free from convulsions since last date, and suffered from several fits to-day; these passed off, leaving no bad effects behind.

3d. These convulsions continue to recur, and are augmenting both in frequency and severity. Ordered ferri carb., gr. x, three times daily.

14th. Has been free from the convulsions till to-day, when they again recurred. This remedy seems to have lost its virtue (if it had any) in suppressing these convulsions. Some small loose pieces of bone were removed from the skull, not, however, without some force.

30th. Was free from the convulsions till to-day, six P. M. The right parietal bone is now detached from its fellow, but is still adhering to the frontal and temporal bones. The handle of a scalpel is easily passed between the parietal bone and dura mater. Attention is paid to his bowels, which are moved daily by a mixture of pot. bitart. and mag. sulph., which seems to mitigate the severity of the convulsions.

July 20. Is still under the same course of treatment. The saline mixture, and the pills of valerianate of zinc alternated with other antispasmodic remedies. He is up and about in the ward, and takes out-door exercise. His general condition is much improved. Yesterday he ventured to go out in the city, and, although the weather was extremely warm, he suffered no bad effects from it. The parietal bone is loose and movable, but not yet ready to be taken away.

Aug. 3d. The treatment in this case remained the same as at last record. This morning I again moved the bone to and fro, as usual, for the purpose of detaching it, when a crackling of bone indicated that the last osseous attachments had been broken, and, after a little manipulation, I was enabled to remove the whole portion entirely. The fragment consists of a portion of the frontal and the whole parietal bone. The frontal part is about half of the bone, separating at a line where the hairy part of the scalp commences. The whole fragment measures at its narrowest (transverse) diameter five inches, at its shortest (antero-posterior) diameter eight inches, and in circumference nineteen inches. The edges of the bone have become much disintegrated by the action of the surrounding pus. Some pus and blood flowed from the surface of the dura mater, when the bone was removed. The dura mater has a thick layer of granulations on its surface, and cicatrization has already begun where the bone was deficient. A varicose condition of the veins in the granulations was observed at various points; where they were ruptured or pricked with a lancet, blood oozed out and the part collapsed. Cold water dressing was applied to the head, and patient was ordered to remain in bed. The scalp covering the necrosed

bone was, since the first incision and trephining, allowed to take its own course. The tendinous portion of the occipito-frontalis being divided, the muscle contracted, and curled up the detached scalp on itself, so that the hair surface pressed on the dura mater. In consequence of these contractions, a large surface of the dura mater was uncovered, having only the layer of granulations, already spoken of, for its protection. By dividing the adhesions the contracted part had formed with itself, and spreading it on the surface of the dura mater, the exposed surface of that membrane was reduced from five by eight inches to three by four inches. On account of the hemorrhage and pain attending this operation (the patient refusing to take an anæsthetic), only one flap at a time was operated on (the anterior), and an interval of several days was allowed to pass to give the patient time to recover from the exhaustion attending the operation before the posterior flap was operated on. In spite of these operations, the dura mater has a space of three by four inches remaining exposed, having neither bone nor scalp to cover it. The granulations of the dura mater are rapidly cicatrizing, and the patient, unwilling to remain any longer in this institution, returned to London,<sup>1</sup> his native place, on the 12th of September, having been an inmate of this hospital since December, 1862.

The only bad effects the patient suffered from the result of this grave disease at the time he left this hospital, were a partial contraction of the fingers of the left hand and presbyopia, confined to the left eye *only*.

*Remarks.*—On comparing the portion of bone removed from Thomas Lauder with a skull of about the same size and age as the patient, I find that the parietal bone has separated at the sutures, connecting it with the bones by which it is surrounded. At the sagittal suture from its fellow at the lambdoidal with the occipital, and at the squamous suture with the squamous portion of the temporal bone. From this suture an irregular line of separation is continued forward to a point over the centre of the right orbit, and striking off almost at a right angle shooting upwards, backwards, and outwards (inclining a little to the left) strikes the fronto-parietal, or coronal suture of the left side an inch and a quarter from the sagittal suture. The frontal bone is thus divided in two unequal parts. The separated portion has its base at its junction with the greater wing of the sphenoid bone, its lesser base at its junction with the parietal bone. The right lower angle of the necrosed frontal bone, if continued downwards, would strike the upper margin of the right orbit in the centre. The ossa Wormiana, found in these sutures, have all macerated and come away with the discharge. The larger ones were removed with a forceps when they loosened. The frontal portion is adherent to the parietal, and, although somewhat movable at the coronal suture, they cannot be separated without fracturing some of the serrations forming the suture. The length of the frontal portion is four inches, width two and a half inches, but on account of its irregular shape it is difficult to give the very exact measures. Both bones together

<sup>1</sup> It is to be hoped that the surgeon under whose care this patient may come,

will report the further history of the case.

measure eight inches in length, and varying from four, four and a half, to five inches in width. From the length of time the bone was macerated in the discharges, it has its outer table exfoliated in several spots; at other points both inner and outer tables have been corroded, producing small irregular holes along the margins of the bone.

BELLEVUE HOSPITAL, Sept., 1863.

---

ART. XIII.—*Two successful Cases of Ovariectomy performed by A. DUNLAP, M. D., of Springfield, Ohio. Reported by J. C. REEVE, M. D., Dayton, Ohio.*

CASE I. Julia C. first came under my observation during the summer of 1861. She was then 19 years of age, unmarried, small stature, and delicate appearance; had never suffered any serious illness, and presented no marks of disease, except enlargement of the abdomen. Not being willing to submit to any treatment proposed, I did not see her again until Sept. 17th, when I took notes of the history of her case, and of her conditions.

Four years before she menstruated once, and once only; at intervals of about three weeks, ever since then, she has had symptoms indicating an effort at menstruation, but no discharge has appeared. About four years ago swelling of the abdomen commenced, but she cannot say upon which side it first appeared; this swelling has steadily increased up to the present time, when it interferes seriously with respiration, and calls imperatively for relief. The abdomen measures fifty-two inches in circumference; the lower ribs are widely separated by the upward pressure of the tumour, exaggerating very much the cone shape of the thorax. Fluctuation is readily perceived in every direction; percussion gives a dull sound everywhere, except in the right lumbar region, and in every position of the patient; the tumour moves from side to side as she turns, as much as possible with the parietes so distended. A vaginal examination showed the uterus to be very much drawn up, so much so as to make it impossible to reach the os uteri; no fluctuation could be felt in the vagina, upon tapping the interior of the abdomen. The appetite was good, bowels regular, and no difficulty experienced in urinating.

On the 21st of Sept., having in the meantime carefully re-examined, and succeeded in reaching the os uteri, I tapped her by the usual method, through the linea alba. Thirty pints of fluid were removed, specific gravity 1.018, dark brown in colour, and presenting innumerable shining particles of matter (cholesterine); upon the addition of nitric acid, two-thirds of its bulk became solid. The removal of this fluid allowed a mass of cysts to be felt in the left iliac region as large as a child's head. She recovered from this operation speedily, and without having presented any serious symptoms.

During the following spring she again called upon me for relief from the distension, the tumour being larger than before. The operation of ovariectomy had been previously presented to her, but was then rejected; it was now again presented, and all the probabilities and possibilities candidly stated, and compared with the inevitable result of repeated tapping. Hav-

ing been examined by Dr. A. DUNLAP, of Springfield, Ohio, and her case declared a favourable one for the operation, she decided to submit to it, and it was performed by that gentleman on the 2d of April, 1862.

An incision some four or five inches long was first made in the linea alba, between the umbilicus and pubis; through this a large cyst presented itself, which was opened, and its contents allowed to escape; the hand was then carried around the remainder of the tumour, and numerous adhesions were peeled off; towards the region of the liver, however, under the lower ribs, the adhesions were extensive and extremely firm, so much so as to necessitate the extension of the incision upwards, some six or eight inches more, and the employment of the knife for their separation, during which process another of the cysts was opened; several ligatures were required here to restrain the hemorrhage from divided vessels. The pedicle of the tumour, which was formed from the left ovary, was then transfixed with a needle, carrying a ligature made of several strands of heavy silk, not twisted together; each half was tied separately and tightly, and one side of the ligature then carried once around the whole stalk, and again tied, when the tumour was removed. After giving sufficient, and, indeed, ample time for all oozing to cease, and after careful sponging of the abdominal cavity, the incision was closed by eight or ten interrupted sutures, strips of adhesive plaster were laid across between them, and a many-tailed bandage drawn around, and secured over the whole.

The patient was placed under the influence of chloroform at the beginning of the operation, and during most of the time she was fully under its influence; towards the latter part of it, the time occupied being about forty minutes, she was in a semi-conscious state, and complained a good deal. At its close she was in a far more favourable condition than could have been expected by any one who saw her but a few minutes before, her abdomen laid entirely open, its cavity, with all the viscera, fully exposed, and the effect of such incisions heightened by the immense mass removed, and by the distension outwards and upwards of the lower ribs.

The fluid part of the tumour weighed twenty-nine pounds, the solid part and assemblage of cysts unopened, thirty-five pounds; total, sixty-four pounds.

I append notes of her condition during a few days. 2.30 P. M., three hours after the operation, pulse 96, catheter passed, urine f3vij; 5 P. M. pulse 100, catheter f3vj; 9 P. M., pulse 108, catheter f3iv. April 3d, 12.45 A. M., pulse 120, catheter f3ij, urine high coloured, has slept well; gave gtt. iv of tinct. verat. viridi; 5.30 A. M., vomited soon after last visit; has slept; pulse now 108, catheter f3ivss, high coloured; gave same dose verat. vir.; vomited before I left; 9 A. M., has slept most of the time; pulse 108, catheter f3ij; 1.30 P. M., found her sleeping; pulse 112, catheter f3iv; tinct. verat. vir., gtt. ii; 5.30 P. M., no more vomiting, complains of great pain in sides in breathing; pulse 112, catheter f3ivss; 9 P. M., complains much of pain; great nausea; pulse 112, catheter f3v; gave gtt. xl tinct. opii, which was vomited immediately; ordered gtt. xxv every hour. April 4th, 1 A. M., pulse 112, catheter f3ij; has taken the tinct. opii twice, and slept since last visit; 6 A. M., pulse 104, sleeping, and has slept, no pain; at 9.30 P. M. of this day it is noted that there had been no vomiting all day, pulse 104, but much complaint of pain in bowels upon taking beef essence or ice, these being the only articles allowed since the operation; ordered tr. opii gtt. xxv. On the 6th, her bed was changed, and she passed urine without the catheter,



which had been used at regular intervals up to that time. On the seventh day after the operation, the bowels moved, in response to several mild injections given on account of pain, with efforts to have a passage. The wound was first dressed on the sixth day, the stitches were removed in due time, and the patient had a rapid and excellent recovery, sitting up for the first time just two weeks after the operation. I find no minute made of the time at which the ligatures came away which were applied to the vessels of the adhesions; the large ligature around the pedicle could not be removed until the 2d of June, two months after the operation, and then considerable force was required to draw it out. The patient has been well ever since the operation; she enjoys excellent health at the time of writing this, and menstruates regularly.

CASE II. Mrs. P., aged 24 years, has always enjoyed good health; menstruated first at 16 years of age, after which an interval of a year elapsed without any return of the flow, which then appeared regularly. The first symptom of her present disease was pain; this began some time in the month of January, 1863, and was constantly present afterwards; its seat was the left hypogastric region. On the 22d of February, the patient was married, and very soon thereafter swelling of the abdomen came on, and increased very rapidly, so rapidly, indeed, that she can give no account of any lump or tumour appearing on either side, and her impression is that she was very nearly as large soon after the first appearance of the swelling as when operated on. The menses were absent from February until the 10th of May, and during that period there were, of course, grounds for suspicion of pregnancy; after that date, they recurred regularly about the tenth of every month.

The operation was performed by Dr. DUNLAP on the 4th of August. The patient was very much emaciated, extremely pale, and not presenting a promising appearance for such an undertaking. She was placed under the influence of chloroform, and its action maintained during the operation, so that scarcely an indication of pain was manifested. The steps of the operation were similar to that of the one already given; a moderate incision first, extended afterwards, when found necessary. There was a considerable amount of adhesion immediately under the first incision, so that a cyst was then opened, firm adhesions also connected the tumour with the omentum, and very firm and quite an extensive one existed between it and the small intestine; all these were peeled off, and two vessels required ligatures. The pedicle of the tumour was secured in the same manner as before, a long interval allowed for the cessation of all oozing, and a careful sponging of the abdominal cavity; the external wound was then dressed as before.

As the patient was not under my care, I cannot give an account of her daily progress. No serious symptoms arose, however, and she suffered little, if any more, than women do generally during convalescence from ordinary labour. The ligature around the pedicle has not yet (Oct. 15th) come away. She enjoys good health, has menstruated once, and has gained flesh considerably.

Independent of any value which may attach to these cases, as instances of the successful performance of operation not everywhere recognized as legitimate, or even justifiable, they are of interest so far as they bear upon points relating to the manner of operating, in regard to which the widest

diversity of opinion prevails even among men of the greatest experience. This diversity extends to almost every step of the operation; thus, some prefer a long incision through the abdominal parietes, others as short a one as possible; some secure the pedicle externally by a needle, or sutures, or by a clamp devised for the purpose; others allow it to remain in the abdominal cavity; some take extraordinary precautions as to the temperature of the room, etc.; others none at all; some are extremely careful not to sponge out, or otherwise interfere with the peritoneum; others treat the membrane with as little consideration as the external covering of the body. Under these circumstances, the steps pursued in every case of operation, with the result, should be faithfully recorded, until sufficient numbers have been reached to enable us to decide upon the best of the different modes.

But these cases are valuable in another point of view. They are the first published reports of an operator whose experience may at least be called considerable, whose statistics will compare very favourably indeed with those of the most celebrated English authorities, and who was a pioneer in this branch of surgery. To use his own language, "when he began to operate, it was with great difficulty he could induce a respectable physician to assist or countenance him," and he was solemnly warned by some of the Nestors of the profession to abandon such hazardous operations upon the human frame!

The first operation performed by Dr. DUNLAP was upon a lady of Ross Co., Ohio, in September, 1843.

He has now operated upon nineteen cases with a result of fifteen recoveries and four deaths.

The causes of death were: in one case, hemorrhage; one case peritoneal inflammation; one congestion of the brain, on the seventh day after the operation; and one debility on the tenth day.

Comparing these cases with the published statistics of the best European operators, and we have a very favourable result for the surgery of this country, which holds so prominent a position in the history of ovariectomy. Thus

	Cases.	Recoveries.	Deaths.
Spencer Wells gives . .	50	33	17
Clay " . .	104	72	32
J. B. Brown " . .	19	13	6
Tyler Smith " . .	14	11	3 and 1 error in

diagnosis; cancerous disease of the omentum; no injections.

## TRANSACTIONS OF SOCIETIES.

ART. XIV.—*Summary of the Proceedings of the Pathological Society of Philadelphia.*

June 27. *Hernia Cerebralis*.—Dr. HUTCHINSON read the following account of two cases of this:—

Charles Fritz, aged 13 years, was admitted into the Pennsylvania Hospital during the night of Monday, July 5th, 1858. Late in the day he had been playing with gunpowder, which, after having moistened with saliva, he fired. Attempting now to pour more powder on the heap, the containing bottle was shattered by the explosion which followed, and fragments of it driven with such violence against the os frontis as to cause a compound comminuted fracture. Early next morning the attending surgeon removed some fragments of glass, together with some pieces of bone, in doing which a portion of the cerebrum protruded. His pulse was at this time 108; in the evening it was 90—presenting at neither time any great peculiarity. He was perfectly conscious, and had no paralysis; had during the day a slight convulsion, which, however, I did not witness. Pupils not particularly affected.

July 7. Boy continues conscious. A large quantity of broken-down cerebral matter was discharged from forehead. There is still no loss of motion or of sensibility. Bowels were moved by injection.

8th. Rather drowsy; answers, however, correctly when spoken to; there is a slight twitching of the lower extremities; he is unable to open right eye to full extent. Wine whey ordered.

9th. Jactitation continues in an increased degree, the left leg being more violently convulsed than the right, the position of the wound being a little to the right of the median line. Pulse 72.

10th. Was delirious during night, and so disturbed the other patients in the ward that I was obliged to have him removed to the cells. When spoken to, however, his answers were correct and sensible.

11th. Pulse 60. Is much more tranquil; eats well; bowels are constipated; pupils still natural.

12th. Not much change in boy's condition. A small piece of glass was discharged to-day. He passed a very restless night; jactitation is, however, less marked. Bowels never moved naturally.

13th. Quite a large piece of glass came away to-day. Is still conscious.

17th. Pulse has vacillated during the past few days between 60 and 72, being more often the latter. Another piece of glass came away to-day. Complaints of severe headache.

20th. Fungus of the brain has appeared, the portion protruding being about the size of a walnut. A solution of chloride of zinc, gr. ij to the f3j, was applied upon it. Boy slightly delirious; headache excessive.

23d. Boy has become so very feeble that it is necessary to support him by means of milk punch. Pupils natural.

24th. For the first time, I noticed that the pupils were dilated. Is very restless; picked at the fungus with his fingers.

25th. Very ill; is unable to speak; made an effort to put out his tongue when told to do so. All the voluntary muscles of his body are rigidly contracted. Is still able to swallow. The attending surgeon removed the fungus with the knife; considerable hemorrhage followed, which was arrested with muriated tincture of iron. Death took place at seven o'clock, twenty days after occurrence of accident.

26th. An *autopsy* was made early this morning, twelve hours after death.

The thoracic and abdominal cavities presented nothing abnormal.

The dura mater was much less adherent to the bone than natural. A small piece of glass and spiculæ of bone were found lying just within the brain.

The anterior lobes of both hemispheres were found to have been injured, especially, as had been supposed, the right, which was broken down into a pulsatious mass.

There was abundant evidence of the presence of inflammation in various parts of the brain—a quantity of pus being found at the base of the brain, and a sero-purulent liquid in the fourth ventricle.

The history of the second case, which terminated favourably, is as follows:—

*Fungus Cerebri*.—Dr. JAMES H. HUTCHINSON related the following case:—

Edward Stanley, aged 21 years, a native of England, a seaman by occupation, was brought to the Pennsylvania Hospital early in the morning of May 25th, 1858, with a compound depressed fracture of cranium, caused by an attempt at suicide with a pistol. Upon examination a lacerated wound over right parietal bone was discovered, and by means of a probe a depressed fracture of the bone was distinctly recognized. The bullet had been previously extracted.

The attending surgeon extended the wound, and finding it impossible to elevate the depressed portion, proceeded to the operation of trephining. In the course of the operation the wadding and several small pieces of bone were removed. The edges of the wound were lightly drawn together by means of adhesive strips, and the whole covered with a water dressing. In the evening pulse was 90. No loss of consciousness since his admission. To have gr. x of calomel in divided doses.

May 26. Pulse less frequent; he has had no unfavourable symptoms with the exception of severe headache.

28th. Pulse 65; headache continues. He does not answer immediately when spoken to. Says his mind is like a kaleidoscope, so confused. Bowels moved by sulphate of magnesia.

29th. Pulse was only 45 this morning; it rose to 60 in the evening. He has not slept well since his admission. The attending surgeon prescribed a small dose of sulphate of morphia.

June 1. Wound discharges freely a very offensive pus. Pulse varies in frequency, never rising above 60. Mind seems to be perfectly clear, but patient is indisposed to use it. He was moved to the cells to-day, as there was some indication of a renewed attempt at suicide.

3d. Condition of patient not materially different from that last noted. No bad effects from the morphia. Patient asked for a book to read. At no time has there been retention of urine.

5th. To-day and yesterday the pulse was very much quickened towards evening, and at the same time there were present some of the other symptoms of fever. A small fungus was observed protruding from the wound. No constipation.

6th. Fungus much larger, and is distinctly seen to pulsate. Pulse 48.

7th. In the evening of to-day the fungus grew enormously; the patient displaying more mental hebetude than I have yet noticed.

9th. Fungus has begun to slough.

11th. Fungus has disappeared; general condition of patient good. A nutritious diet and tonics prescribed. Bowels have to be moved artificially.

14th. The tumour seems to be reappearing. Urine had to be drawn off.

27th. The fungus is now about the size of an English walnut. There is no paralysis, but some twitching of the muscles about the mouth. Pupils are very much dilated.

5th. Fungus again sloughing; dressed with a weak solution of chlorinated soda.

7th. Sat out in the yard for a long time this morning. His gait is slow and somewhat unsteady, but not remarkably so. There is also a slight twitching of the muscles of left arm. Bowels are generally constipated.

14th. Pupils are no longer dilated. Wound now dressed with a very weak solution of chloride of zinc.

18th. Several small pieces of bone came away to-day.

August 30. From the date of the last note his convalescence has been rapid, being protracted only by an attack of diarrhoea.

He remained in the hospital long after the end of August, but I find no note made worthy of transcribing. He continued up to the date of his discharge very silly and flighty, but his previous history, and the answers he made to our questions when admitted, led us to suppose that this was not a condition induced by the accident, but was with him the usual one. He was lately seen by one of the nurses of the hospital, who said that his mental condition remained the same. We have not discovered whether he had ever done anything for a livelihood.

1863. Oct. 28. *Fibro-Plastic Tumour of the Dura Mater*.—Dr. H. C. Wood, Jr., exhibited the specimen, and read the following history of the case from which it was derived:—

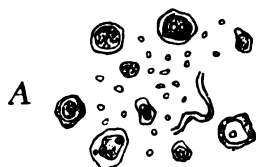
J. R., a native of Scotland, æt. 53, came into the medical wards of Pennsylvania Hospital May 27th, 1863, with the following history. About eight weeks previously, whilst living at service, she arose one morning before light, and on going down stairs fell and hurt herself considerably, but got up immediately. She then went across a room but fell again on the stairs, and there lay unconscious until assistance was attracted by her moaning. Before this accident, she had been perfectly well and bright. She had not had any symptom of brain disease. No headache, loss of memory, or alteration of disposition. On these points I carefully and repeatedly questioned both herself and friends. She had been subject for at least ten years to violent pain, her employers said, in her right arm.

After her fall she was subject to agonizing pain in the head, constant, or nearly so, but with paroxysmal exacerbations. She had also loss of memory and unnatural irritability of temper combined with a failing of the physical powers. At the time of her entrance into the hospital her condition was as follows: She had marked paralysis of the whole of the left side including the face. It was more pronounced in the upper than

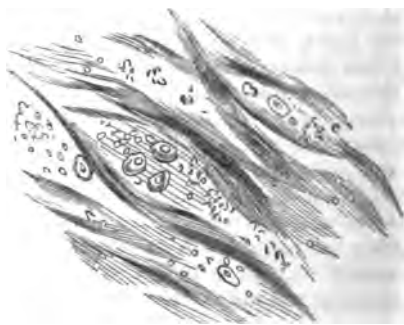
lower extremity. Sensation was not very much diminished. She complained greatly of pain in her head. Her bowels were costive. She was ordered ten grains of iodide of potash three times a day, and improved until the 5th of June, when she was attacked with excessive headache, and in a few hours became deeply comatose with stertorous breathing. Cold was applied to her head and a blister to the back of her neck; she was also freely purged. The following day she was less unconscious and rapidly improved, so that on the 10th she walked up stairs to the clinic. After this attack the paralysis of the face was for awhile very marked, and persisted after that of her extremities.

Her intellect continued much enfeebled and her muscular power below par, but she was completely free from pain, was cheerful and walking about until July 5th; on that day she was seized with an agonizing headache, and soon began to lose power in her limbs. By the 17th she was semi-comatose and perfectly helpless, passing her feces and urine in the bed. On the 27th she began again to rally, and in the course of a week or two was about the wards again. Her intellect was more feeble than before her second exacerbation; she was more childish, as well as physically weaker. In the latter part of August she had another similar but less severe attack. From this she entirely recovered; but on the 27th of September had a convulsion, limited, however, to the muscles of the head and neck on the right side. From this time she was evidently failing, and on the 9th or 10th of October a rapid change took place in her. She lost all power over her limbs and sphincters, and was unable even to protrude her tongue; but, strangely enough, there was no marked facial paralysis. She was almost entirely unconscious until her death, which took place on the 19th, unaccompanied by convulsions. During her illness she never was troubled with vomiting or nausea. Her limbs were soft, the flaccid muscles never indicating irritation of the brain.

*Autopsy.*—Cadaver rather fat. Brain substance very slightly congested. An effusion of bloody serum at base of brain amounting probably to half a gill. Meninges brightly injected, closely adherent to the anterior portion of the right hemisphere. There was situated just anterior to the fissure of Sylvius an irregularly ovoidal and lobulated tumour. This was of considerable firmness, but did not creak under the knife, and was surrounded by a very delicate fibrous tunic. It measured one and a half inches in length by one and a quarter in breadth, and three-quarters in depth. The



B



dura mater coalesced with it so closely that it probably sprang from that membrane. The brain was softened all around the mass, but more especially

posteriorly to it, where its consistency was destroyed for about an inch and a half. There could not be found any indications of apoplectic clots either old or recent. The tumour juice contained numerous irregularly ovoidal cells, mostly containing another nucleated cell (Fig. B). No multipolar or fusiform cells could be found. On section the tumour was seen to be composed of fibrous elements with apparently amorphous material, amongst which were numerous cells and granules similar to those seen in the juice (Fig. A). All the viscera of the thorax and abdomen were examined and found to be healthy.

*Apoplexy Following Railroad Injury of Head. Death, Autopsy, etc.*  
Dr. JOHN ASHHURST, Jr., read the following report of this case:—

O. H. S., aged about 40, was received into the Episcopal Hospital about 3 o'clock on the afternoon of October 16th, 1863, having fallen in attempting to get off from the cars of the New York line, on the morning of the same day. He had a deep cut through the buccinator and masseter muscles on the right side, penetrating to the bone. He was then (about six hours after the injury) in a state approaching coma, unable to articulate or swallow, but restless and uneasy. I saw him about 10 A. M. on the morning of the 17th, when his condition was as follows: Skin rather cool and clammy, and in the face very dusky, in some places almost blue. Pupil of left eye rather more dilated than on right side, and both apparently insensible to light. Mouth slightly distorted; all the left side of the face seemed flabby and relaxed. The jaw was dropped, and the tongue, which could not be protruded, stiff and very dry; breathing stertorous. When first admitted some bleeding occurred from the right ear, but had now ceased. Slight palpebral but no orbital ecchymosis. Urine had been passed without aid of a catheter.

From the symptoms and history of the case I suspected fracture at the base of the skull; the autopsy, however, proved this to be incorrect.

No marked change occurred until the patient's death, which took place about 8 A. M. of the 18th, nearly forty-eight hours after the injury.

*An autopsy* was made seven hours after death with the following results:

*Rigor mortis* strongly marked; no external injury apparent except the wound of the face above referred to.

*On opening the skull* a considerable quantity of fluid blood escaped, and between the membranes and the brain, pressing on the base of the latter on the right side and posteriorly, was a clot the size of a pigeon's egg or larger.

There was also much uncoagulated blood bathing the base of the brain, and the membranes were exceedingly congested. Altogether not less than four to six ounces of fluid blood had been poured out upon the brain.

*The thoracic viscera* appeared healthy; some old adhesions existed in the right pleural cavity. A long fibrinous clot occupied the right ventricle of the heart, extending into the pulmonary artery.

*The liver* was enlarged, and gave evidence of fatty degeneration; this, with the fact of a whiskey bottle having been found in the patient's pocket, made it probable that he had been a drinking man. *The gall-bladder* was distended. *The spleen* was lobulated but healthy. *The right kidney* enlarged and congested; the left of the usual size and healthy.

No other abnormal appearances were observed.

*Supra Pubic Fistulae of Urinary Bladder.*—Dr. H. C. WOOD, Jr., read the following history of this case:—

M. M., æt. 25, a cripple from antero-posterior curvature of the spine, in the out wards of the Philadelphia Almshouse, called my attention about the first of August, 1862, to a swelling which resembled a tumour rising up out of her pelvis and reaching nearly to her umbilicus. She said that it was about the same size as when she first noticed it several days before. She made no complaint of inability to pass her water, and refused either to go to the hospital or to submit to an examination. The tumour was not very distinctly separable from the abdominal walls. It was moderately tender to pressure. A day or two after this I left the house temporarily and was absent about a month. After my return I found that the swelling had ulcerated anteriorly through the abdominal walls and discharged several pints of a grumous fluid. She now consented to go to the hospital where she lived six weeks. After the perforation she never passed her urine *per vias naturales*, and said that she had had great difficulty in passing it previously, although the retention appeared never to have been complete. She died of pneumonia supervening on exhaustion.

*Autopsy.*—The cadaver was very much emaciated. There was an ulcer about three lines in diameter two inches below the umbilicus. The cavity of the thorax was very much lessened by the deformity of the spine. The lungs were strongly attached to the thoracic walls by old pleuritic adhesions. The parenchyma was congested and the lower lobe of the left hepatised. Their pericardium was completely adherent to the heart. There was no marked valvular disease. The liver was normal. There was in the walls of the abdomen a large cavity extending down in front of the pubis. Its surface was coated with a thick deposit of amorphous salts, principally urates. With this abscess the bladder communicated by a small ulcer with sharp defined edges, similar to those of a perforating ulcer of the stomach. The opening was at the fundus of the bladder. The walls of the latter viscus were very greatly hypertrophied. The urethra was apparently imperforate. The uterus was normal with the os well formed, but across the upper portion of the vagina stretched a thick fibrous partition. One of the kidneys was normal for about two-thirds its bulk, but the other third was very much contracted, the two parts being separated by a well-defined line. The diseased structure was not granular, but was very dense and firm, and somewhat semi-translucent. In it were several large and freely intercommunicating cavities. No tubules could be found in it, only indistinctly fibrous and amorphous tissue.

*Nov. 25. Syphilitic Caries of the Hyoid Bone.*—Dr. N. W. KING exhibited the specimen and read the following history of the case:—

Michael Timney, seaman, æt. 30, was admitted into the hospital of the U. S. Naval Asylum from the U. S. Gunboat "Albatross," August 31st, 1863. Affected, according to the diagnosis on his hospital ticket, with asthma. At the time of admission the patient was much emaciated; suffered with a severe cough and profuse purulent expectoration, intense dyspnoea and acute pain in the region of the hyoid bone, augmented by pressure and on swallowing. His cough at this period was peculiar and characteristic, producing a sound similar to that elicited by coughing through a metallic tube. In addition to the symptoms above enumerated, he also had a large ulcer on the upper lip. After a careful examination of the patient the following facts were obtained, which have thrown a gleam



of light on what seemed to be an extremely obscure case. He confesses to have suffered with primary syphilis some six years previous to present illness. The cicatrix of the chancre was examined, and I have no reason to believe, from the inspection, that the ulcer belonged to the class of infecting chancres. According to his statement (for the accuracy of which I am not responsible), no consecutive symptoms ever occurred, and no constitutional symptoms were made manifest until the present time. The present affection originated some nine months ago on board the steamer "Albatross" in the Mississippi River. He states that it originally commenced as an ordinary catarrh and with decided aphonia. This condition continued for some months, with the addition of severe attacks of dyspnoea and paroxysmal attacks of coughing. The disease progressed rapidly, and he was sent to this hospital in August last, in what was considered a hopeless condition. On admission he was put on tonics: Oleum morrhuae, iodide of iron, porter, and nutritious diet. Under this treatment he improved rapidly, gaining strength and flesh, and losing his cough and hoarseness to a certain extent. On the 18th of September, during a severe paroxysm of coughing, he expectorated a fragment of bone. He complained at that time of intense pain in the region of the greater cornua of hyoid bone of right side. I may here make mention of the fact that his expectoration has always been extremely fetid. On the 24th of September another fragment of bone was expelled. Since that time, as the patient's general health had so much improved, he was put upon the use of Donovan's solution, with great benefit. Hoarseness much mitigated and cough not only improved in frequency but in character. As he will be unfit for active duty for a long time, he has been discharged from the naval service. From the history of the case, which has been most carefully studied, I am of the opinion that he is suffering with ulceration of the laryngeal cartilages and caries of the hyoid bone; both conditions, in all probability, resulting from the syphilitic taint.

*Dec. 9. Phthisis.*—Dr. H. C. Wood, Jr., read the following history of this case:—

M. L., æt. about 35. She came into the medical wards of the Philadelphia Hospital, April 3d, 1862, with the following history: She had been failing for a month, had lost her appetite and strength. A week previously to her entrance she had a chill, since which time she had rapidly grown worse. She stated that she had had bleeding from the nose. At the time of her entrance, her condition was as follows: her abdomen was slightly tympanitic, and she had diarrhoea; her strength was not much; her mind was clear. In my notes I find the following entries: April 4th. Both lungs full of bronchitic rales; coarse crepitation at the bottom of right lung; breathing, 24 per minute; pulse, 102. April 5th. Crepitant rale in left lung, with coarse respiration; pulse, 108; breathing, 24. Tongue very dry, red and chapped. April 6th. Lungs very resonant on percussion anteriorly. Left lung, slight crepitation. Right lung, crepitation extending over lateral and lower portions. Tongue dry, chapped, and red in the centre, with a yellowish fur exteriorly, and its edges moist and red. Right clavicular region, slight dulness and prolonged respiration. April 12th, patient lying in a state of stupor. Pulse very thready and frequent. April 13th, patient dead.

There was one very marked character belonging to the physical signs, and that was their indefiniteness; the crepitation was a rale heard only in

inspiration, and yet wanting the fineness of a true crepitant rale. Death occurred in five weeks from the onset of the disease.

*Autopsy.*—Nails and skin of cadaver, very blue. Lungs, very deeply congested posteriorly; filled with miliary tubercles, especially posteriorly. Infero-posterior portion of left lung in a state of red hepatization. Heart somewhat dilated. Liver very fatty.

*Comminuted fracture of Patella.*—Dr. JAMES TYSON exhibited the specimens, and gave the following history of the case from which it was derived :—

P. B., cab-driver, fell from a hay-loft, striking his head and knee upon a brick pavement. Was admitted to the Pennsylvania Hospital, December 3d, 1863, a few hours after the accident, with slight contused wounds of the head, and a striking injury of the left knee, though any existing condition was greatly obscured by swelling and discoloration. On examination, no crepitus could be elicited; and though there appeared an interspace between two fragments of patella, yet motion applied to the upper or lower edge was communicated to the entire bone. A sedative dressing was applied for the time being.

The patient was a drunkard, and, by evening, was labouring under delirium tremens of a violent character. On removing dressings the following day, the two fragments were distant four inches.

The usual treatment for mania-a-potu failed to accomplish a cure, and the patient died six days after admission, during most of which time he was labouring under delirium.

A post-mortem examination revealed the following conditions: A large effusion of blood existed in and around the joint. The principal fragments, now considerably approximated, were removed and cleaned; when they were found again fractured in the following manner. The upper, transversely, half an inch from its lower margin, the line of fracture extending to the inner edge, where, however, the fragments continued adherent by articular cartilage. The fracture, commencing on the under or articular surface, did not extend through the outer lamina of compact substance, but was met by another line parallel to this compact layer, thus excavating, as it were, nearly a cubic inch of bone.

The lower and outer edge of this principal upper fragment was reduced to a granular consistence, so as to have been necessarily lost.

The inferior fragment, being about one-third the entire patella, was broken into three pieces, adherent by surrounding fibrous tissue and cartilage, but separable on maceration.

A portion of the cartilage covering the articular surface of this fragment, was forced around the upper edge into the cancellated structure, showing the great degree of direct force producing the fracture.

In addition, a considerable part of the centre of the patella was reduced to powder, so that when the fragments were as nearly as possible coaptated, the anterior central portion appeared excavated.

*Dec. 14. Mammary Tumour.*—Dr. JOHN ASHHURST, Jr., exhibited the specimen, and gave the following history of the case from which it was derived :—

This specimen was removed by Dr. Thos. F. Betton, of Germantown, from the breast of a female, aged about thirty, and married. Six months previously she remembers having received a blow on the breast from the head of a child with whom she was playing.

The tumour was of the right side, and about the size of a duck's egg. It was quite movable under the skin, and was supposed to be a simple fibrous tumor—the patient stated that during the last three months it had increased rapidly in size. It was found to have firmer adhesions than had been anticipated, and contained two cysts, which were filled with dark fluid blood. Under the microscope, the tumour, as had been anticipated, presented a dense fibrous stroma.

The history of this case was evidently the following: The accidental injury, six months previously, had produced an effusion of blood, which did not coagulate, but became encysted, and in turn produced the tumour.

1864. Jan. 13. *Bed Sores following Typhoid Fever; Gangrene of Toes and Scrotum.*—Dr. JOHN ASHHURST, Jr., read the following history of the case:—

C. Y., admitted to the Episcopal Hospital during the summer of 1863, with large bed sores, consequent upon a severe attack of typhoid fever. For some time he rapidly improved, and during October became well enough to sit up, and even walk a short distance. In a few weeks more, however, the cicatrices re-ulcerated, and from this time he became steadily worse. For some weeks before his death, his body was covered with petechiæ. His scrotum and lower extremities now became exceedingly cedematous. On Sunday evening, January 10th, 1864, the swelling left the scrotum and penis, which became black, and presented every appearance of gangrene. The toes of either foot became also gangrenous. The whole lower extremities were morbidly sensitive, the slightest touch giving him great pain. He died rather suddenly on the evening of the 12th. An autopsy was made at noon the next day; rigor mortis well marked. Some congestion existed in the lungs and right kidney; the left kidney was enlarged and pale. Spleen contracted and lobulated. Liver exhibited a slight degree of cirrhosis. The heart was filled with fluid blood, and recent "currant-jelly" clots. Its valvular structure was perfectly healthy.

*Stricture of Rectum, Cirrhosis of Liver, etc.*—Dr. JOHN ASHHURST, Jr., exhibited the specimens, and gave the following history of the case from which they were derived:—

I. M., aged 44 years, was admitted to the Episcopal Hospital, September 21st, 1863, for fistula in ano, which was relieved by an operation performed by Dr. Thomas. At the time of the operation it was ascertained that she had also a stricture of the rectum. She was very much enfeebled, anæmic, and occasionally experienced violent attacks of pain in her epigastric region, accompanied with throbbing. Her bowels were loose rather than constipated, and their operation attended with great pain. She never, while under observation, had vomiting or other evidence of intestinal obstruction. The discharge from her bowels was characterized by the presence of a bloody mucus. For some years she had experienced pain in the region of the liver, extending to the right shoulder. Micturition was painful.

She died on the morning of Dec. 16th, 1863, and an autopsy was made 28 hours after death, with these results:—

*Rigor mortis* slight; no external appearances indicating disease, with the exception of emaciation, which was decided. Head not examined.

*Thorax.*—*Right lung* adhered to the chest walls, and on its anterior surface slightly emphysematous, congested somewhat posteriorly. *Left lung* healthy. *Heart* enlarged and filled with clots, principally of the "currant-

jelly" variety. The attachments of the chordæ tendinæ to the segments of the mitral valve were much thickened, giving the margin of the valve a peculiar knobbed appearance.

*Abdomen.*—*Liver* enlarged, and presenting very perfectly the appearance described as the "nutmeg liver." *Pancreas* slightly enlarged but apparently healthy. *Left kidney* large and pale, with some indistinctness of cortical and tubular portions; right kidney healthy; spleen healthy. About two inches above the anus, the rectum was found to be of considerably diminished calibre, the constriction, however, appearing to be from an unusual thickening of the proper walls of the rectum, rather than from any adventitious deposit. This narrowing, which was to nearly the size of a large goose-quill, extended for about an inch and a half.

The mucous membrane of the gut above seemed softened and eroded. A microscopic examination of the constricted portion of the gut showed fibrous tissue with epithelial cells.

The length of the stricture in this case was unusual, it being stated by Prof. Gross that organic strictures of the rectum generally vary in extent from a few lines to half an inch. [*Pathological Anatomy*, p. 573.]

The distance above the anus, two inches, is that stated by Syme and Curling to be the most usual, though others have placed it as high as six inches, and some have professed to find and treat strictures in the sigmoid flexure of the colon.

Death in this case did not result, at least directly, from the rectal disease, for the constriction was never excessive, and under the careful use of bougies had somewhat diminished.

It is a question of some interest in this case, where the morbid action began, whether in the liver or in the bowel; whether indigestion and intestinal derangement, resulting from hepatic disease, gave rise to the rectal obstruction, or whether to the latter was due the morbid condition of the liver.

*Osseous Degeneration of Valves of Heart.*—Dr. HUTCHINSON exhibited the specimen, and gave the following history of the case from which it was derived :—

J., a seaman, aged 53 years, was admitted to the Hospital of the Protestant Episcopal Church, during the last week of December. His history is not very complete; he said that he had followed the sea up to three months before his admission, and that he had had repeated attacks of rheumatism. Upon examination, he was found to be suffering with disease of the heart, ascites and œdema of lower extremities. He also lost blood freely from internal piles.

A closer investigation of the heart detected hypertrophy, with both mitral and aortic insufficiency. The urine was found not to contain albumen.

The patient died early in January, and the following is the report of the resident, Dr. Gittings, who made the autopsy. About four ounces of serum were found in pericardial sac; hypertrophy existed, as had been diagnosed, especially developed in left ventricle; in the folds of both mitral and aortic valves were found numerous small calcareous bodies; in addition to this, the edge of one of the folds of the aortic valve was of bony consistence, and entirely separated from the rest of the valve for the space of quite a quarter of an inch. The aorta was found somewhat enlarged, and to have undergone atheromatous degeneration. The liver and one of the kidneys were fatty.

## REVIEWS.

ART. XV. *Medical and Surgical History of the Crimean Campaign.*

1. *La Guerre de Crimée, les Campements, les Abris, les Ambulances, les Hôpitaux, &c. &c.* Par L. BAUDENS, D. M. &c. &c. Paris, 1858.
2. *Relation Médico-Chirurgicale de la Campagne d'Orient, &c.* Par G. SCRIVE, D. M. Paris, 1857.
3. *Maladies de l'Armée (Campagne de 1854-55-56).* Par LOUIS CAZALAS, D. M. Paris, 1860.
4. *Société Impériale de Médecine de Constantinople—Discussion sur la Typhus observé dans les Armées pendant la Guerre d'Orient.* Constantinople, 1856.
5. *Du Typhus de l'Armée d'Orient.* Par FELIX JACQUOT, D. M. Paris, 1858.
6. *England and France before Sebastopol, looked at from a Medical Point of View.* By CHARLES BRYCE, M. D. London, 1857.

At a period when we have an army of several hundred thousand men actively engaged—the greater number of them at least—in the duties of the field, and exposed not only to the inevitable casualties of war, but to the diseases which ordinarily follow in the train of troops on the march, and prevail more or less extensively in camps and garrisons and during exhausting siege operations, it behooves us to inquire as to what has been the result elsewhere, the extent to which other armies have suffered from disease, the nature of those diseases, the circumstances under which they arose, the causes from which they were found to originate, and the means resorted to for the purpose of arresting their progress, of mitigating their effects, or preventing their recurrence. Such an investigation is not only interesting to medical and other readers as constituting an important item of professional and general history, but is entitled to consideration as a useful object of statistical comparison, and as furnishing hints for the guidance of individuals intrusted with the government and medical and sanitary management of our own armies.

Among the cases most in point none appears to us more entitled to notice than the medical history of the combined armies which lately invaded the Crimea; for while we shall be able, by a comparison of the facts observed in those armies, to show, 1, the evils resulting from a neglect—avoidable or otherwise matters not—of certain hygienic or other measures, it will be perceived that by the adoption of these, advantages of the most marked kind can be and are obtained. It will be further perceived, that the larger number of the diseases from which armies suffer are of the class denominated preventable, and to a certain extent under the control of the medical and other authorities, and that hence their occurrence or diffusion may often, if not generally, be ascribed to negligence, oversight, or ignorance on the part of these authorities.

It need scarcely be stated that during that eventful campaign, the pro-  
No. XCIV.—APRIL 1864. 28

fessional details of which are embodied in the works whose titles will be found at the head of this article, and which has already been brought to the notice of our readers in an interesting and instructive review contained in our issue of October, 1861, the allied armies, French, English, and Sardinian, suffered considerably more from disease—as well from those peculiar to the climate and localities of the country, as from those arising from other causes—than from the usual casualties of war. This is amply shown by the statements contained in the volumes before us, and to which we shall presently recur. We allude more particularly to what occurred in the English and French armies, inasmuch as, so far, we have not been able to obtain the necessary documents relative to the sanitary condition of the Sardinian troops. It may be proper to mention, at the same time, that the statements relative to the loss of the English army, from the various sources alluded to above, are founded on positive data obtained from the official reports presented to parliament, or from other sources equally entitled to perfect confidence, while the returns we have of the loss in the French army are only approximate, and differ somewhat in the different reports. Even M. Baudens does not support by official references his summary of the casualties of the war. Dr. Bryce properly remarks on this subject that he does not imagine this omission is owing to politic reserve on the part of the writer, but ascribes it rather to the circumstance that the medical department of the French army is not supposed to preserve any records of hospital or field obituary statistics. Hence, notwithstanding his supreme rank and particular mission to the East, M. Baudens could only obtain the collective numbers from the *Intendance Militaire* or *Conseil de Santé* as a favour, sources of information evidently not resorted to by him. We strongly suspect that the absence of these complete and official returns may be due to a reluctance on the part of the war department to make public, documents, which would exhibit to the nation the immense loss the army had sustained in the Crimea, as also the fact that the sufferings of the troops had been proportionately greater than those sustained by the English—that while sickness and mortality increased in the French army as the war progressed, the reverse results obtained among the others, and that such an exhibition would lead to the conclusion that the effect was in part due to the adoption of a sanitary system and of hospital and camp arrangements, contrasting unfavourably with those in operation among the allies. The following statements and remarks will establish these points and place beyond doubt that the Crimean campaign formed no exception to the rule that armies in active war suffer more—experience a larger mortality—from the effects of disease than from the swords and bullets of the enemy.

It will be seen from the statements of M. Scrive, as quoted in general terms, in a former issue of this Journal, that the number of French troops sent out to the East, at different times, amounted to 309,268 men, of whom 200,000 entered the ambulances<sup>1</sup> and hospitals to receive medical aid, 50,000

<sup>1</sup> The word is here used in its proper and correct sense. An ambulance is not, as is supposed in this country, a carriage to carry sick and wounded soldiers, but movable establishments or hospitals, placed near army corps or divisions, and so arranged as to follow their movements, or located in the interior of cities, during the prevalence of epidemics, to insure early assistance to the sick. To each is attached a surgeon (*chirurgien major*), an administrative officer, a number of assistant surgeons, adjutants, nurses (*infirmiers*), &c. It is amply supplied with tents, beds, furniture, and dressings for the wounded. All sick or wounded soldiers are received in the ambulance and there prescribed for or their wounds dressed. From thence they are sent back to their corps or the nearest

for wounds and 150,000 for diseases of various kinds. The total mortality, according to the same statement, was 69,229, or  $22\frac{1}{3}$  per centum. Of these 16,320 died of wounds 7,507 were killed in action or disappeared, and the balance, 45,422, died from disease. On referring, however, to the work of M. Scrive, and also to other documents, and among them to a report published in the *Moniteur* (23d of Oct., 1856), and prepared by the Minister of War by order of the Emperor, we find that while the number of troops sent out, the acknowledged loss by disease and wounds, and the amount of killed in action, are accurately given, the statement alluded to contains a few inaccuracies in relation to other points which deserve correction, while several details of too important a character to be passed by unnoticed have been omitted.

The following details are copied from the report mentioned as published in the *Moniteur*.

## MOVEMENTS OF THE TROOPS.

<i>Sent Out.</i>		
From France	.	257,324
" Algeria	.	47,983
" Corsica	.	1,998
" Italy	.	1,963
Total	.	309,268

*Loss.*

Died from time of arrival to 30th March, 1856	.	62,492
" since that period	.	4,564
No. of men who disappeared and may be included among the dead	.	1,781
Shipwrecked on board the <i>Sémillante</i>	.	392
Total loss	.	69,229

*Returned.*

Returned home on convalescence tickets or furloughs	.	65,069
Strength of the army on 30th March, 1856	.	146,240
To wit, in the Crimea	.	120,476
" Turkey	.	25,764
Loss during evacuation as stated above	.	4,564
Returned home after peace	.	141,676
" " before	.	20,390
Total returned	.	227,135

*Summary.*

Troops sent to the East	.	309,268
Loss	.	69,229
Balance	.	240,039
Returned to France and Algeria	.	227,135
Leaving a difference unaccounted for	.	12,904

If now we turn to M. Scrive, we shall find that of the troops sent out, which as stated reached the enormous amount of 309,268, only 7,507 were killed in action or disappeared, while 193,178 entered the ambulances and hospitals

hospital, according to the severity of their condition. From the ambulances light wagons, or horses provided with proper baskets, according to the nature of the ground, are sent to the field in time of action to convey the wounded. These conveyances are in charge of surgeons and nurses. See Tardieu, *Dict. d'Hygiène Publique*, i. 84, 1852.

of the Crimea to receive medical and surgical aid—48,848 for gun-shot and other wounds and the effects of congelation, and the balance, 144,330, for cholera, typhus and typhoid fevers, scurvy, thoracic, and other diseases. By adding to these 23,250 that entered the hospitals at Constantinople—1,149 for wounds, and 22,101 for internal diseases;—and 13,271 cases of all sorts sent to the hospitals of Gallipoli and Varna, we have a grand total of admissions for wounds and internal diseases of no less than 239,699, which, on a force of 309,268, gives us a proportion of one in about 1.28.

Of the deaths, exclusive of the killed, 28,404 occurred in the Crimea, 27,825 in the hospitals of Constantinople, and nearly 5,500 at Gallipoli, Varna, and other places before the troops reached the Crimea. This gives us a mortality of 61,729, which, added to the number of the killed in action, and between 1,200 and 1,300—say 1,250 that died in the Turkish hospitals of Gallipoli, Varna, and Nagara, after the departure hence of the army for the Crimea, gives a mortality, not of 69,229 as given by Scrive, the *Moniteur*, and other authorities, but of very near 70,500 (70,486). This gives nearly one death out of every 4.1 of the entire number sent east; and one in every 3.41 received and treated in the hospitals and ambulances.<sup>1</sup>

M. Scrive's volume, p. 344, contains an official tabular return, showing the number of troops present during each of the twenty-three months they remained in the Crimea, with the number of sick, and the mortality during each month.

From this document we find that the average strength of the army during each of the twenty months the war lasted was 133,770 men, varying from 145,120 (December, 1855) to 38,030 (September, 1854). During the same time, the total number of admissions into the hospital amounted, as already stated, to 193,178, giving a monthly average of 9,478, which varied from 19,443 (June, 1855) to 2,064 (September, 1854). The deaths amounted to 28,404, with a monthly average of 1,391, varying from 3,806 (June, 1855) to 358 (September, 1854). The highest mortality corresponded to the largest number of admissions (June, 1855), but at that time the strength of the army did not exceed 121,887, or 23,233 less than it was in December of the same year, when the admissions did not reach beyond 12,953, and the mortality 1,382. The next highest number of troops, 144,512 (January, 1856), furnished only 13,418 admissions with a loss of 1,763; while the next highest mortality, 2,846, corresponded to 13,454 admissions, the strength being 132,800 (p. 344).

These are large figures, exhibiting a heavy mortality, and illustrating in a most forcible manner the disproportion between the loss by sickness and that by the more legitimate casualties of war. But considerable as the loss appears to have been from the documents quoted, there is reason to believe that it was in reality larger than the French authorities seem inclined to

<sup>1</sup> The following tabular view of the movement of the hospitals of the Crimea, of Constantinople, and of Turkey, from the 10th of April, 1855, to the 30th of June, 1856, is given by M. Baudens:—

Remaining on the 10th April	9,448	} 217,303
Admitted since	207,855	
Cured	138,815	} 174,132
Sent to France	35,317	
Died	43,024	} 43,171
Remaining at last date	147	

This gives a mortality of one in 5.5 of the number admitted for professional aid, or 19.79 per centum. (p. 402.)



acknowledge; and that the disproportion alluded to was more marked than would follow from what precedes. Thus, Dr. Bryce thinks himself justified, from a scrupulous collection of published and private data, in submitting the following as the lowest summary of French losses:—

Killed in action . . . . .	8,750
Ambulance service from wounds and diseases . . . . .	31,000
Constantinople hospitals . . . . .	32,000
Dobrukscha expedition . . . . .	6,000
On passage from Crimea to Constantinople . . . . .	7,500
Gallipoli, Varna, and elsewhere . . . . .	3,000
Of invalids on passage from Turkey to France, and of sick and invalids, &c., on evacuation of the Crimea . . . . .	5,000
	<hr/> 93,250

Indeed, we are not sure it is improper to conclude from French authentic documents themselves that the loss in the French army, though perhaps not as large as suggested by Dr. Bryce, exceeded really, in no small degree, the 70,500 mentioned above. As we have seen, the *Moniteur* of the 23d October, 1856, contains a Report published by order of the Emperor, and prepared by the Minister of War. From this document we learn that of the 309,268 men sent out to the Crimea, only 227,135 returned to France and Algeria. Of the others (*i.e.*, 82,135) 69,229 are said to have died, leaving a balance unaccounted for of not less than 12,904. What became of them? What right have we to suppose they all returned safe and sound to France and Algeria as the rest are said to have done? Why may we not, on the contrary, conclude that a large portion of them—perhaps the majority—perished from some cause or other, in the East, on the passage home, or after their arrival there? With regard to this rather considerable item, which is obscurely explained by the Minister, Dr. Bryce asks whether the difference ought to go to the reduction of the number of men sent East, with proportionate increase of losses by deaths and otherwise, or whether it is simply a novel mode of balancing the debit and credit sides of an imperial expenditure, of which the particulars cannot be produced—a device for concealing the disappearance from the muster-roll of any number of persons not otherwise accounted for, in which category, he remarks, French surgeons have assured him, were many hundreds embarked at Kamiesch for hospitals on the Bosphorus, but who found a resting-place mid-channel. “Mr. Bandens declares that, at one time, two hundred soldiers died daily between the Crimea and Constantinople.”

We may add that the disproportion between the loss from disease, and the casualties of war, will be admitted to have been still greater than before pointed out, when it is found that many of the wounded died, not from the direct effects of the injuries they had received on the field or elsewhere, but from attacks of cholera, or typhus, or typhoid fevers supervening while they were under treatment; or from their wounds assuming a fatal character as a result of their systems being contaminated with the poison of one or other of those diseases, or broken down by the scurvy, from which, as we shall see presently, the army suffered to a very great extent. In all these, death should be credited to the complicating and contaminating disease, and not to the original injury.

On a reference to what occurred in the British army, we shall find that while the loss of life, though proportionately smaller than among their allies, was nevertheless large, the disproportion of which we have spoken was equally marked. The total number of men sent to the East, exclusive

of commissioned officers, amounted to 93,959. Of these, as stated by Dr. Bryce, who derived the information from a parliamentary return quoted in the *United Service Magazine*, 2658 were killed in action; 1761 died from wounds and mechanical injuries; while 16,298 died from all other causes, and 12,903 were invalided, leaving a balance of some 60,300 as the remaining effective strength, non-combatants exclusive, at the close of the war. In a tabular return (A.) contained in the *Medical and Surgical History of the British Army in Turkey and the Crimea*, "showing the primary admissions by months into the hospitals of the army, from the 10th of April, 1854, to the 30th of June, 1856, also all the deaths which, during the same period, occurred in regimental and general hospitals, in hospital-ships, or suddenly, or from violence, with the exception of those which occurred in action with the enemy," and in other returns contained in the same volume, we find statements differing but slightly from those given by Dr. Bryce.

Thus, the whole number admitted into the hospitals for diseases and wounds, is reported as amounting to 162,673—144,390 for the former, and 18,283 for the latter. Of this number (162,673) 18,059 died—16,298 from diseases, and 1761 from wounds and mechanical injuries. Of the invalided, the number returned amounted to 13,117—from diseases, 9544, and from wounds and injuries, 3573; while the number killed in action is stated at 2598.

If to this number we add that of the commissioned officers attached to the army, which amounted to 3905, we have a total sent out of 97,864. Of these officers, 157 were killed in action; 579 were wounded—with a mortality of 82; and 255 were invalided. Of the number affected with the prevailing diseases, and of the mortality occurring therefrom, we can find no account. We know, however, that the loss was comparatively small, not exceeding the ratio of 8.4 per cent. of mean monthly strength during the whole period of the war—6.8 per cent. from May, 1854, to March, 1855, and 2.9 per cent. from that time to June, 1856. It must be remarked, in connection with the subject, that the English returns are more precise, full, and accurate than the French, and show no large item of men whose fate was not known to, and explained by, the authorities. So far from this being the case, Dr. Bryce states, on the authority of the Director-General, Army Medical Department, that, at the time of his writing, not ten men of the British expeditionary force were unaccounted for.<sup>1</sup>

Kindred were the results obtained, as well as we can gather, in the Sardinian contingent sent to the Crimea; and similar, indeed, will be found to have been or to be the disproportion in question, observed in all other instances of campaigns undertaken with large bodies of men, unless, perhaps, such campaigns be of very short duration, in healthy seasons and countries, and are characterized by a succession of extensive and sanguinary battles. Under such circumstances, the disproportion in question may be less marked, or may even disappear entirely; but the former of these occurrences, if noticed at all, have been so very rarely; while it appears to us, from all we have been able to gather, that well-authenticated examples of the latter are not to be found on record.

We shall now proceed to offer a survey of the history of the principal diseases by which the French army was so sorely afflicted, reserving to a future occasion a similar account of the progress of the same diseases, as they prevailed among the British troops, and of the measures resorted to,

<sup>1</sup> Page 20, note.

with a view to arrest their ravages and guard against their recurrence, and lastly, a comparison of the results obtained in both armies.

*Cholera.*—Soon after it had reached the shores of the Black Sea, and long before the siege of Sebastopol was inaugurated, the French army encountered a fearful visitation of cholera.<sup>1</sup> It was especially while the troops were operating through the Dobrudscha, and undergoing the fatigues and privations incident to forced marches, that this disease exercised its greatest ravages. At Varna and in the Dobrudscha, as also at Gallipoli, Constantinople, Nagara, Pera and Adrianople, where it manifested itself during the same visitation, the number of cases, from the 3d of July to the 20th of August, 1854, amounted to 8142, with a mortality of 5188. At Varna, in the course of forty-eight days, commencing on the 3d of July—the disease attaining its maximum of intensity from the 30th of that month to the 6th of August—the cases amounted to 2674, and the deaths to 1525. In the Dobrudscha, in thirty days, the cases were 3392—the deaths, 2474. At Gallipoli, in thirty days, out of 1184 cases, 736 died. At the Hospital of the Pera, in forty days, 396 cases occurred, of whom 247 died. The number of troops at Varna and in the Dobrudscha being 55,000, we have, in those places, the proportion of 1 case in 9 men, and a mortality of 1 in  $1\frac{1}{10}$  of those attacked; while, taking the whole number of cases, and the mortality in all the places mentioned, we obtain a proportion of 1 case in 7, and a loss of 1 in  $1\frac{1}{10}$  cases.

For several months after the army reached the Crimea the disease, though prevalent to a certain extent, from the preceding September, especially among new comers from Varna and France, had lost some of its intensity, and no longer retained the disposition to spread far and wide it had manifested before. Indeed, so late as May, 1855, the sanitary condition of the troops, which, after the battle of the Alma (Sept. 1854), and during the early days of the siege of Sebastopol, had suffered many and severe hardships, and been exposed to various causes of insalubrity, appeared to have so much improved as to be considered satisfactory. Thus, so far as cholera is concerned, we find that in October, when M. Scrive commenced the detailed reports of the number of cases and deaths, and when the strength of the army was computed at 46,000, 820 cases of the disease were admitted into the hospitals, while the mortality from the same was 289. In November—strength 56,237—the number of cases was reduced to 450, with a mortality of 129. December, with a strength of 65,179, gave 352 cases and 88 deaths. January, 1855, the strength being increased to 78,502, furnished 448 cases and 96 deaths. February, March, and April, respectively, when the army had been still further reinforced, and amounted to 89,309, 96,258, and 91,258, the cases admitted were reduced to 126, 6, and 22; while the mortality amounted to 96, 69, and 5. In May, however, matters began to assume another and more gloomy aspect. The disease once more took on the epidemic character and rapidly spread to every division of the army—filling the hospitals and causing an immense loss of life. In the aforesaid month—strength being 107,760—the cases admitted rose from 22, as reported in April, to 499, with a mortality of 180. June (strength 121,887) presents a total of cases of no less than 4,756, with a loss of 777. In July (strength 118,655), 1215 cases were admitted, and the deaths amounted to 907. In August (strength 119,251), the reports give 998 cases and 649

<sup>1</sup> Scrive, p. 76. Baudens, p. 179, &c.

deaths. In September (strength 125,680), 489 cases and 336 deaths. October (strength 138,532), 559 cases and 296 deaths. Finally, in November (strength 143,250), the cases were reduced to the comparative small number of 177, and the deaths to 125.

From this period the disease gradually subsided, and finally disappeared completely some time before the month of July, 1856, when the campaign closed—giving place, as it receded, to the advent of typhus, which had prevailed extensively the year before; but now assumed, as we shall see presently, a most formidable and fatal epidemic character.

From the preceding statements we perceive that the cholera, after subsiding from October, 1854, to May, 1855, with fair prospects of its total disappearance, broke out afresh, and almost suddenly attained its acmé in point of diffusion and mortality in June, during which and the two following months, it attacked, in an army averaging 120,000, no less than 6,969 men, and causing a loss of 2,333. The ratio of the cases to the strength of the army during those three months was, in June, 1 in 25.62; in July, 1 in 98.48; and in August, 1 in 119.5; while the ratio of deaths to cases was, in June, 1 in 6.12; in July, 1 in 1.34; and in August, 1 in 1.54. The strength of the army during the 14 months embraced in the period in question—from October, 1854, to November, 1855, inclusive—varied from 46,000 (October, 1854) to 143,258 (November, 1855), giving a monthly average of 99,848. The total number of cases amounted to 10,917, with a like average of 779.4, and the total number of deaths to 4,043, with an average of 288.78. The ratio of the average number of cases to average strength is 1 in 126.53; and that of average deaths to average of cases 1 in 2.7.

In the hospital of the medical school in Constantinople, 1,490 patients were admitted from February, 1855, to June, 1856. Of this number, 658, or 44 per cent. (1 in 2.25) died. (*Cazalas*, 102.)

M. Baudens states the whole number of cases from the 10th of April, 1855, to the 30th of June, 1856, in the Crimea, and to the 10th of August of the same year in Constantinople and Turkey, to have been 11,024, with a loss of 5,585, or 1 in 2.3 (p. 402). On the other hand M. Scrive (406) estimates the whole number of cases which occurred in the army, from the commencement to the close of the campaign, to have been 18,400, with a mortality of 11,000. This gives 1 in 15 of the average number of soldiers, and 1 death in 1.6 of the number of cases.

By some of the medical officers the disease in question is said to have been imported and to have spread by contagion. Others, among whom will be found some of the leading physicians, say the disease owed its origin to a special atmospheric constitution of a choleric character pre-existing in Turkey and the Danubian principalities—Roumelia and Bulgaria; while others again attribute it to the importation by the troops, not of the disease fully formed, but of its germs remaining in a latent state in the system of the soldiers, and subsequently brought out into actual existence through the operation of sundry existing morbid influences. Mr. Baudens, whose authority ranks high on all questions of the sort, adopted the latter opinion, which he thought to be the most prevalent among the army medical officers, and seemed disposed to disbelieve the pre-existence of the disease or of a choleric medical constitution of atmosphere in the localities affected (p. 189).

"Sure it is, he says, that Commander Ballard, of the military staff (*Etat Major*), who, about this period, visited the shores of the Danube, in the vicinity

of Silistria, heard nothing about cholera, either in the army of Omer Pacha, or among the inhabitants of the valleys where the latter pitched his tents."

In another place (p. 179), Mr. Baudens says that the disease was doubtless imported in the east by the successive arrivals of troops belonging to the fifth division of the army, who came from the south of France, where the inhabitants were a prey to the epidemic. At the same time he admits (p. 193) that the cholera is transmitted through the agency of the atmosphere. "It is not contagious in the rigorous sense of the word, otherwise physicians would all be attacked."

Mr. Cazalas, whose means of observation were ample, affirms positively that the choleric influence evidently existed in the Drobrudscha previously to the arrival of the French army, and denies in the most positive manner the contagiousness of the disease.

"I have myself, he says, seen cases of cholera among the native inhabitants, and the information I have collected on the spot, leaves no doubt in my mind on the subject. What proves in the most incontestable manner that such is the fact is that the first division, which was the most severely handled, came from Algeria, where the cholera did not prevail at the time of its departure. Again, the Bachi-Bazoucks, who know neither France nor Algeria, and who had scarcely, if at all, communicated with our troops, were the first attacked and the most violently scourged by the disease. Hence the choleric constitution developed itself spontaneously in Turkey and the Crimea, where our troops were the more severely affected as they were placed under the influence of the worst possible hygienic conditions. Such, at least, is what observation seems to demonstrate."

This extract we obtained from the volume of Mr. Baudens (pp. 189-190, note). In his work on the diseases of the Eastern army, published two years after, Dr. Cazalas enters fully on the subject, and adduces many facts in support of his opinion.

"It has been everywhere proclaimed" he remarks, "that in 1854 the cholera was imported into the East from Africa and France. Now, all the official reports show that the first troops attacked on their arrival from France did not disembark at Gallipoli earlier than the first days of July; whereas a very manifest choleric influence prevailed at Varna over the Anglo-French army long before that period; and that a Zouave of the first regiment who had arrived in the East more than two months before, from the province of Algiers, where the cholera did not prevail, died from that disease in the Hospital of Varna, during the last fortnight of June. It is also stated that in 1854 the choleric germ was introduced into Adrianople by troops arriving from France. Now Dr. Lespian, surgeon of the military hospital, reports that numerous cases of cholera were observed in various parts of the city, long before the appearance of the disease among the soldiers in the barracks" (p. 134).

Dr. Cazalas states, that in the months of September and October, 1854, a number of choleric patients—some convalescent and others actually sick—arrived from the Crimea at the hospitals of Pera, Maltépé and Ramis-Chiftlik. Nevertheless the disease was not communicated to any one in either of those establishments. In 1854 and 1855 choleric patients arriving from France, the Crimea, Varna, the neighbouring camps, &c., passed through Constantinople daily; and yet, notwithstanding, cholera never spread epidemically in that city. The Imperial Guard and the two divisions of reserve which had suffered severely from cholera while encamped at Maslak in April, 1855, arrived in the Crimea in May, carrying along with them the seeds of the disease. Soon after they had landed at Kamiech, the latter increased to a certain extent; but soon decreased rapidly, and finally disappeared completely. Almost all the troops arriving from France or Con-

stantinople were more or less afflicted by the disease after their landing, as had been the case with the Imperial Guard and reserve; but in no instance was it communicated to the other troops.

"From the 28th January, 1855, to the 31st January, 1856, 1488 cases of cholera, arriving from France, the Crimea, Maslak, the city and the neighbouring hospitals, were admitted into the hospital of the military school (Constantinople), which was specially appropriated to that disease. All the severe cases were treated in separate wards; whilst the light cases and the severe ones during the period of convalescence, were distributed among patients labouring under ordinary complaints, the average number of whom amounted to from five to six hundred. Notwithstanding this, not only was the cholera not communicated in the wards to ordinary patients, but all the persons employed in the hospital—physicians, orderlies (infirmiers), apothecaries, Sisters of Charity, chaplains, administrative officers—escaped. It was only in the month of June, 1856—five months after the disease had entirely disappeared—that some choleric symptoms and two slight cases of cholera were observed within the precincts of the establishment" (pp. 139-8).

To the same view of the subject M. Scrive is strongly inclined; and as the position he held as physician in chief of the army of the Crimea afforded him the fullest opportunities of deciding questions of the kind, his opinion must necessarily carry great weight. At the same time he admits that the doctrine of those who refer the outbreak of the disease to the development of imported choleric germs, sustained, as it seems to be, by the appearance of cases of that disease on board of ship during the passage from Marseilles to Varna, is entitled to respectful consideration. Nevertheless he does not think that it deserves as much attention as the doctrine of the pre-existence of a choleric medical constitution of atmosphere in the localities affected.

"Thus, before contact with the infected troops had taken place—even a fortnight before—a manifest choleric influence existed in the army. The reports of the physicians were very explicit on this subject. They pointed out the existence of numerous attacks of cholericine; such was especially the case with two of these reports. One from the physicians of the third Zouaves (second division) dated on the road from Adrianople to Varna; the other from the physician of the ninth battalion of the foot chasseurs, give full details of the symptoms of the disease observed; and those symptoms are certainly those of violent cholericine. Indeed, in the course of the last fortnight of June, a Zouave died of a rapid attack of cholera in the hospital at Varna. And yet the men had been in the East nearly two months. These observations lead to the admission of the existence of a choleric medical constitution in Roumelia and Bulgaria; unless we can believe in an incubation of more than two months. And, even then, whence could the germ of this incubation have been derived, seeing that the disease existed neither in France nor in Algeria at the time of the first departure of troops? True, it is probable that the contact of new troops that had derived the choleric germ in France, may have facilitated the development of the choleric influence, feeble as yet, but kept up in the old soldiers through the influence of special climatic conditions. I am disposed to make this small concession to the doctrine of transmission; but feel firmly convinced that our army, even in the hypothesis of its having been deprived of all communication with France since the middle of June, would not have escaped the cholera, the imminent and near advent of which was foreshadowed by the medical constitution of the moment."

M. Scrive is no believer in the contagion of cholera, in the rigorous acceptance of the term, though admitting the possibility of condensed emanations derived from numerous choleric dejections accumulated in a room or an hospital ward, exercising an energetic cholericizing influence on

persons in health living in that atmosphere. But these he holds in the light of exceptional cases. Under all other circumstances he denies the possibility of cases of imported cholera communicating it and occasioning a true and devastating epidemic, unless there exists in the atmospheric condition of the place a native predisposition to the disease. The truth of this proposition, he maintains, was amply demonstrated during the campaign in the Crimea. "Thus, how often did we not observe there on a surface of country of 12 square kilometres, cholera, imported through arrivals from France and Turkey, die out in a few days for want of dispositions favourable to its development. Had it been otherwise, the army of the Crimea would never have achieved the great enterprises by which it has been so frequently illustrated. It would have been entirely destroyed by the effects of the disease by which almost all the bodies of men arriving monthly to fill up the ranks of the army were infected. The most striking example of this immunity to transmission was observed at the time of the arrival in the Crimea of the entire Imperial Guard and of the two divisions of the reserve. These troops, while suffering from the cholera at Constantinople, received orders to proceed to the Crimea, and there, the choleric principle which they carried with them, instead of spreading among the old divisions of the army, immediately diminished in intensity and soon disappeared completely."

But whatever may have been the mode of origin of the cholera in the French army during the Crimean campaign, the facts observed show conclusively, or rather fully confirm an opinion arrived at long before in other parts of the world, that whenever the disease breaks out spontaneously or otherwise in any locality, it acquires, to use the words of M. Scrive, "an extraordinary power of destruction by association with the ordinary great perturbative and disorganizing morbid causes—small and ill ventilated habitations, the vicinity of divers sources of infection, concentrated animal and vegetable effluvia, the overcrowding of a large mass of population, excessive fatigue, exciting passions of the mind, and the painful privations and other trials so commonly incident to the life of soldiers during prolonged wars. These causes, according to M. Scrive, aggravate in an enormous proportion the mortality of cholera, either primitively in cases of sudden invasion, occasioning instant death; or secondarily, through the influence of incomplete reaction leading to typhoid complications, which are almost always fatal. The latter transformation, which was observed but rarely during the period of increase of the cholera of Varna, but became more frequent during the period of its decrease, constituted the almost constant feature, and the almost invariable cause of death, of the attenuated forms of the disease observed in the Crimea by the physicians of the army."

*Bowel Complaints.*—The French army suffered considerably from bowel complaints in the forms of diarrhoea and dysentery. Of the former, 19,339 cases were reported, causing a mortality of 1,984, or about one in ten; while of the dysenteric form, 6,105 cases occurred, and of these 2,061, or one in three, died. In the hospital under the charge of M. Cazalas at Constantinople, or to which he was attached, 1,976 cases of diarrhoea and 522 of dysentery, making a total of 2,498, were admitted in 1855 and the first seven months of 1856. Of the former 766, or 1 in 2.5; and of the latter 215, or 1 in 2.4, died, giving a proportionate mortality of 1 in 2.5 of the total number admitted (p. 72). It must be remarked, that those numbers,

large as they are, include only simple cases of both diseases and those of either kind which were sufficiently violent to predominate in instances of complication with other complaints. In proof of the great frequency and fatality of these diseases, M. Cazalas remarks that from the commencement of the campaign they constituted one-fifth of the totality of cases admitted, and over one-third of the totality of deaths (p. 73). In the Crimea they constituted a little less than one-eighth of the cases admitted, while the mortality amounted only to 1 in 42. The smallness of the mortality here mentioned, and the largeness of that reported by M. Cazalas as having occurred in his hospital at Constantinople, may be accounted for by the fact that many, if not most of the cases admitted in the establishments of the Crimea—14,807 out of 25,444 cases—were sent to Constantinople, there to die or recover. M. Scrive remarks that the special climate of the Crimea, the choleric influence existing at the time, the conditions incident in every way to the painful life of soldiers, were the principal causes of those diseases. Except in cases complicated with cholera, which frequently occurred, diarrhoea did not assume a dangerous character. The disease was often complicated with scorbutic phenomena of various degrees of intensity. The dysenteric cases, with the exception of a certain number exhibiting an infectious character, were not as malignant and fatal as they usually prove to be in Algeria. Many recovered unless the disease presented grave complications or was associated with some epidemic complaint. In both events the danger of a fatal termination was greatly increased. Both diseases prevailed most extensively during the hottest days of summer, but nevertheless, were observed at all seasons of the year. (*Scrive*, pp. 345, 429.)

M. Baudens states that diarrhoea and dysentery constituted a most frequent source of complication in fever cases. Two-thirds of the patients affected with these diseases, admitted in the hospital of Constantinople, presented such complications. "Diarrhoea, as he remarks, was sufficiently prevalent to justify the statement that diseases were almost all preceded by symptoms of acute diarrhoea, and followed by those of the same complaint in a chronic form. This fatal complication is not peculiar to the army of the east. It is observed in all armies in the field. It is the result of the mode of life of soldiers, of bad nourishment, of nostalgia, and of a thousand influences which it is impossible to guard against."<sup>1</sup> Dysentery he says is almost invariably ushered in by diarrhoeic symptoms of greater or less intensity. It constitutes in fact the second stage of that disease. "Intestinal alterations carried as far as ulceration constitute the anatomical lesions of the two diseases." M. B. is of opinion that acute diarrhoea would have prevailed still more extensively had it not been for the moral energy which, during the whole course of the campaign, and in spite of everything, sustained the French troops, and was never more powerfully manifest than at the most critical moments (pp. 203, 204, 205, 206).

M. Cazalas, who records opinions very similar to those entertained by M. Baudens, founded on what he observed at Constantinople and elsewhere, and unites with Desgenettes, Fournier, and Vaidy, in the statement that dysentery, under which name they evidently include chronic diarrhoea, causes more deaths in armies than typhus, yellow fever, or plague, in like manner dwells on the great frequency of complication of intestinal complaints with other diseases, especially scurvy. Of 4,114 cases of all diseases

<sup>1</sup> Baudens, 203-4.



treated in the wards under his special charge, 1,537 were affected with the complaints in question. Out of this number only 406 presented either a simple or uncomplicated form. The balance, 1,131, were combined with other diseases, as follows: angina 2, ophthalmia 3, hæmeralopia 1, jaundice 10, ascites 1, anasarca 10, albuminuria 6, bronchitis 30, pleuro-bronchitis 16, pleuro-pneumonia 3, pulmonary tubercles 8, congelation 98, scurvy 452, scurvy and anasarca 21, scurvy and intermittent fever 85, intermittent fever 170, intermittent fever and congelation 7, remittent fever 138, remittent fever and congelation 16, typhoid fever 54. From this it results that out of 4,114 cases treated by M. Cazalas, more than one-third were labouring, when admitted, under dysentery and diarrhoea, either in a simple form or complicated with other diseases; and that in more than two-thirds of the individuals thus affected, those diseases were complicated with other complaints of a more or less severe kind. It may be added that of the whole number of cases (4,114), 1,098 died, and that out of this number 359, or a little over one-third, were carried off by one or other of those complaints, simple or complicated; and that the mortality among the dysenteric and diarrhoeic cases was in the ratio of 1 to 4.2—359 in 1,537 (pp. 73, 4.)

*Scurvy.*—A short time after the arrival of the French army in the Crimea, the troops began to suffer from the scurvy, a disease which was destined to play a most important and painful part among the causes of the ordeal through which they passed during the remainder of the campaign. In relation to the events of that early period, M. Scriver remarks:—

“Already the old soldiers began to present the opening symptoms of scurvy. Slight pain in the lower limbs, a slight irritation and swelling of the gums, petechial spots on the skin. Such were the only apparent signs at the outset, and our brave soldiers did not discontinue their terrible labour.”

In November, out of 5,882 admissions in the hospitals (including 450 wounded Russian soldiers), only 40 are reported as presenting symptoms of scurvy. In December the number had increased to 100 (out of 6,348 admissions). In January, 1855, it rose to 452 (out of 9,092). But the disease now began to attract special attention from its undue increase, both as regards the number of cases and the severity of the symptoms. It more particularly assailed the older and the best seasoned soldiers. In February, 689 cases were admitted (out of 8,194). In March, 770 cases were admitted (out of 7,585). April gave 917; in May the number diminished to 189; in June it rose to 630; July presents a report of 1,240; August, 2,600; September, 1,488; October, 707; November, 717.

But these numbers, large as they are, and calculated as they were, to create great alarm respecting the sanitary condition of the army, were far from including all the cases existing. Many, though labouring under indubitable signs of the disease, did not seek relief in the hospitals, remaining at their quarters and continuing to attend to their duties. In February, 1855, when, as we have seen, 689 cases were admitted, the regiments, as M. Scriver informs us, contained not less than 3,000 cases of the disease, 100 in the old, and 25 in the new regiments. He adds that none of those he noticed in his visits were of an absolutely severe character. More than two-thirds, he says, presented but slight symptoms, as tumefaction and erosion of the gums and petechia, 600 were more severely affected, while in 400 the symptoms were sufficiently marked to call for regular treatment, and for their being sent to Constantinople. The troops employed in the siege operations were less

affected than those composing the army of observation. Those especially were severely attacked who had been allowed one or two furloughs.

The following tabular return, showing the number of cases which occurred monthly in all parts of the Crimean army, whether admitted into hospitals or treated elsewhere, together with the mortality, the ratio of cases to the number of troops, and of deaths to cases from October, 1854, to June, 1856, inclusive, may properly find place here :—

	Months.	Admissions.	Deaths.	Average No. to Strength.	Av. Deaths.
1854.	October . . . . .	20		1 in 2,300	
	November . . . . .	80		1 " 700	
	December . . . . .	800	2	1 " 70	1 in 400
1855.	January . . . . .	1,575	6	1 " 43	1 " 263
	February . . . . .	789	6	1 " 115	1 " 131
	March . . . . .	452	3	1 " 213	1 " 151
	April . . . . .	348	8	1 " 287	1 " 43
	May . . . . .	132	2	1 " 825	1 " 66
	June . . . . .	350	4	1 " 346	1 " 180
	July . . . . .	1,140	8	1 " 104	1 " 142
	August . . . . .	2,400	10	1 " 49	1 " 240
	September . . . . .	1,388	20	1 " 91	1 " 69
	October . . . . .	707	26	1 " 198	1 " 31
	November . . . . .	718	35	1 " 205	1 " 20
	December . . . . .	1,248	53	1 " 116	1 " 23
1856.	January . . . . .	3,980	132	1 " 36	1 " 28
	February . . . . .	4,341	166	1 " 31	1 " 34
	March . . . . .	1,787	132	1 " 66	1 " 13
	April . . . . .	785	31	1 " 134	1 " 28
	May . . . . .	275	4	1 " 248	1 " 67
	June . . . . .	50	1	1 " 500	1 " 50
		23,365	639	1 in 320	1 in 94 $\frac{1}{2}$

In one of the hospitals of Constantinople—that of the Medical School—from January, 1855, to July, 1856, 3008 cases of the disease were admitted. Of these 284 died; being in the proportion of 1 in 10.5. The whole number of sick of all complaints admitted into the establishment, during the same time, being, as already stated, 12,075; we perceive that the proportion of scorbutics to the sick amounted to 1 in 4. The proportion may indeed be said to have been even larger than here stated; inasmuch as the disease only prevailed among the patients arriving from the Crimea—those arriving from France being entirely exempt from its effects. The number of the latter amounting to nearly 9,000 (8,994), it follows that the ratio of scorbutics to the sick generally may, with the strictest propriety, be set down as 1 in 3.<sup>1</sup>

In the cases before us, as in those occurring everywhere under the influence of similar agencies, the principal cause of the disease was sought in the prolonged and uniform use of gross food—especially of salt meat—and the long deprivation of fresh vegetable substances, aided by adjuvants of a more or less energetic character, arising from the mode of life to which soldiers are exposed, as also by excessive fatigue and the effects of a low temperature, associated with a humid condition of atmosphere. Of all the aggravating causes, the latter association—of cold and humidity—was found to be the most energetic. In a few days slight cases under its influence assumed a most threatening and dangerous aspect, by being suddenly

<sup>1</sup> Cazalas, p. 79.

attended with œdema of lungs. To these must be added nostalgia and other depressing passions of the mind, contracted, ill-ventilated, and dark habitations, &c. It may be stated, in connection with this subject, that the disease was found to prevail very extensively during two seasons of opposite character—during the coldest and dampest days of winter and the hottest and driest of summer. But as is remarked by M. Scrive, these are seasons when the earth is deprived of vegetation—a condition he regards as exercising the most powerful influence in the production of the disease (p. 427). In some instances the patients laboured simply under pure scurvy. In many others the disease appeared in connection with diarrhœa, dysentery, typhus or typhoid affections, and especially with congelations, which complications were greatly facilitated through the influence of the liquidated state of the blood, and had in their turn the effect of greatly aggravating the scurvy itself.<sup>1</sup>

In illustration of the frequency of the disease and of its complications, M. Cazalas states that of the 4114 cases of diseases treated in his ward at Constantinople, 1374 were scorbutic. In 481, or about one-third of these, the disease assumed a simple and uncomplicated form. In the other cases it showed itself in association with the following complaints: chronic diarrhœa, 436; chronic diarrhœa and intermittent fever, 85; chronic diarrhœa and anasarca, 21; chronic dysentery, 32; chronic dysentery and œdema of the glottis, 4; intermittent fevers, 60; gastric remittent fever, 112; typhoid remittent fever, 44; congelation, 41; gangrene, 1; otitis, 3; severe bronchitis, 56; and pleuro-pneumonia, 1 (p. 80).

From this it follows, as M. Cazalas remarks, that confirmed scurvy, simple or complicated, prevailed in one-third of the patients treated in his hospital, and in more than one-half of those coming from the Crimea. He adds that if it were possible to include in the estimate of the number affected with the disease all the cachectic men in whom scurvy was not sufficiently marked to be positively diagnosed at the first visit, it may be averred, without fear of mistake, that from the beginning of the winter of 1854 to the close of the campaign, all the patients arriving from the Crimea were, with a few rare exceptions, more or less tainted with the scorbutic vice, which imparted to every disease a remarkable character of chronicity, tenacity, and gravity (p. 80).

*Thoracic Diseases.*—Of the number of cases of thoracic diseases which occurred in the army during the war, and of the mortality accruing therefrom, it is impossible to form an idea, as these are mixed up with other complaints accompanied with fever, and included under the general heading of febrile complaints (*fièvreux*). The cases occurring in the Crimea numbered 42,453. Of these, 34,420 were sent to Constantinople; 6902 were discharged cured; and 1731 died. In the hospitals of Constantinople 63,124 were received from Varna and the Crimea; 8038 were admitted from the troops stationed there; 35,625 left cured or convalescent; 22,988 were sent to the Turkish hospitals or France; and 12,549 died. Of thoracic complaints proper M. Scrive tells us that during the first winter, which was less severe than the second, the number of cases, especially of pneumonia and pleuro-pneumonia, was limited; but during the second winter, the low degree of the temperature, which at times was considerable, produced a rather large amount of inflammations—more or less pure—of the bronchia, of the lungs, and of the pleura. In general these

<sup>1</sup> Scrive, pp. 389, 426, 27, 8.

diseases were complicated with other complaints. In cases in which such complications did not present themselves, these diseases went through a regular course, and occasioned but a limited mortality. But in instances in which, for example, scurvy had destroyed the cohesion of the blood, the lungs often became the seat of sanguineous extravasations or of cedematous effusions. Such cases seldom ended in recovery; and sometimes proved suddenly fatal by asphyxia.

*Paludal Fevers.*—The army suffered in a marked degree from malarial fevers of the intermittent and remittent types, a form of disease—of the latter type particularly—very prevalent in the country, where it is regarded by the Russian physicians as endemic, and as sparing no classes of individuals, whether native Tartars or strangers. Of the existence in the country invaded of localities capable of producing the evil in question, as also of a range of thermometrical heat and atmospheric humidity associated with such localities in giving rise to such effects, and of the fact that the French troops were placed under circumstances rendering them susceptible of the disease, there can be no possibility of doubt. The Valley of the Tchernaya lies to the eastward of the northern portion of the plateau which overhangs it by nearly perpendicular cliffs, and is several miles both in length and width. On the northwest it extends to the Inkermann Valley, between the heights of the plateau and the ruins of Inkermann, to the head of the harbour. On the north it is defined by the Mackenzie Heights. On the east it is closed by the elevated district which separates it from the Valley of Baidar; and on the south it is separated from the Valley of Balaklava by a chain of hills, which extends from the north of Kamara to the westward as far as the plateau. Through the centre of this valley runs the River Tchernaya, which, after a tortuous course among the hills to the eastward, descends into the valley near Tchorgoun, and thence proceeds through the narrow defile which leads to the head of the harbour; and south of this river are the series of hills several hundred feet above the sea level, and known as the Fedenkine Heights. (*Med. and Surg. History of the British Army*, vol. ii. p. 16.) It may be stated also that the Valley of Balaklava becomes contracted as it proceeds south, and passes by a narrow swampy gorge between lofty hills on either side. (*Ib.*) The shores of the Tchernaya, along which a part of the army was encamped, are marshy; and between Eupatoria and the camp there are not less than four rivers, the margins of which are in a similar condition; while everywhere about this position may be found a mixture of salt and pure water, the malarial effects of which are well known. (See *Discussion*, &c., p. 65.) As a natural result, the disease was particularly rife along these marshy localities, and though the influence of the cause continued to manifest itself during the whole course of the winter months, so as to give rise to complications with other diseases—in other words, to occasion what may be called hybrid complaints—as also to produce occasional attacks of pure or simple malarial fevers, it appeared much more specially rife during the hot weather of 1855, when it soon filled the hospitals and ambulances with both officers and soldiers. So common, indeed, were the various forms of the disease, and the complications to which it gave rise, that by high authorities it is regarded as having constituted the principal complaint prevailing among the troops; most of the cases reported as typhus being merely remittents modified by a typhus or adynamic condition of the system.

Remittents, as M. Scrive informs us, made their appearance at the end under the influence of excessive heat, paludal emanations, and the

fatigue incident to the service, and spread extensively during the months of June, July, August, and September.

"Of slight character when they presented themselves devoid of complications, these fevers had a mean duration of three septenaries, exclusive of the time of convalescence, which was prolonged, and during which the patient remained very feeble. They associated themselves with all the severe morbid types then prevalent, and especially with the typhic or typhoid forms" (p. 391).

The disease, though intrinsically of little severity, assumed a highly tenacious and dangerous character in soldiers whose systems had become strongly impregnated with the paludal poison in Algeria, or whose constitutions were enfeebled and had lost the power of resistance. In some cases, it assumed the pernicious form. In general, however, it presented itself with symptoms of greater or less reaction. Nevertheless, often the type, in the intermittent form, was not pure and well marked—the hot stage coming on without being preceded by a cold stage or chill, or going off without the usual critical sweat. The intermittents yielded to moderate doses of quinia; while, on the contrary, the remittents ran their regular course, unchecked by the specific, during several septenary periods. The disease appeared to be little more than a complication of the prevailing continued fevers, most cases of which were associated with symptoms arising from the action of the paludal poison. In other instances the paludal fever was the original disease. The same may be said of cholera, diarrhœa, and dysentery, for while instances of these diseases, unaccompanied by phenomena denoting a complication with intermittent or remittent fever, presented themselves, cases of the latter fevers seldom remained long without exhibiting signs of a choleric, dysenteric, diarrhœic, or typhous taint. To these complications, especially with cholera and typhus, is to be ascribed much of the mortality occasioned by these fevers.

In illustration of the frequency of these malarial fevers, as also of the complications in question, we may again borrow from M. Cazalas the results obtained at the hospital of the medical school of Constantinople during 1855, and the first seven months of 1856. Of 12,075 cases of all diseases admitted in that establishment—nearly three-fourths of which came from the Crimea—1,589 were affected with malarial fevers, being in the proportion of 1 in 7.6 of the whole number. Of these, the intermittent fevers amounted to 587 and remittent fevers to 1,002—1 in 20 of the former, and 1 in 12 of the latter. In M. Cazalas's ward 1,207 cases of these fevers were treated, 427 intermittents and 780 remittents. Of the former 355, and of the latter 511—866 of both types combined—were complicated with other diseases. Of these complications, M. Cazalas gives the following details: Simple cases with gastric derangement, 72; with continued gastric fever, 269; gastric fever and scurvy, 109; gastric fever and bronchitis, 25; gastric fever and hæmoptysis, 1; gastric fever and pleuro-pneumonia, 4; gastric fever and jaundice or congestion of the liver, 4; gastric fever and chronic diarrhœa, 118; gastric fever, diarrhœa, and congelation, 16; gastric fever and dysentery, 20; gastric fever and purpura, 3; gastric fever and smallpox, 2. With typhoid, 164; typhoid fever and diarrhœa, 6; typhoid fever and bronchitis, 7; typhoid fever and congelation, 4; typhoid fever and scurvy, 41; with scurvy alone, 60; chronic diarrhœa, 148; chronic diarrhœa and congelation, 7; chronic diarrhœa and pleuro-pneumonia, 2; with dysentery, 32; with bronchitis, 10.

These complications occurred at all seasons of the year—in winter as in the spring; in summer as in autumn (pp. 61–2).

The number of cases reported in the Crimea during the campaign was 19,525, with a mortality of 1,985, or about 1 in 10. Of the whole number, the intermittent cases amounted to 6,983, with 4 deaths; the remittents to 12,267, with 1,795 deaths; and the pernicious to 275, with 150 deaths. Of those who died in the Crimea—17,540—7,855 were cured, and 9,685 were sent to Constantinople, where many died. The disease, as already mentioned, prevailed principally during the hot months of 1855. Of the remittents, 2,358 with 69 deaths were reported in August; 2,073 and 67 deaths in July; 1,288 and 66 deaths in September; 1,260 and 68 deaths in June; October, 1855, and February, 1856, gave respectively 853 and 840 cases. After this, the disease tapered off, the number varying from 681 to 29. The mortality in December, 1855, and January, February, and March, 1856, when the disease was strongly complicated with the typhous element, was very large. In the first of these months it amounted to 247 out of 725 cases, or 1 in 2.3; in January, 260 out of 529, or 1 in 2; in February, 482 out of 840, or 1 in 1.8; and in March, 250 out of 681, or 1 in 2.7.

*Typhoid Fever.*—From an early period of the campaign, typhoid fever prevailed in the army to a considerable extent. It was first noticed in its pure form, or as an element of complication with other diseases, at Gallipoli. It next showed itself at Varna, and afterwards prevailed more or less extensively at Constantinople and in the Crimea, where, in January, 1856, it spread, especially among young soldiers, "whose constitutions," as remarked by M. Scrive, "become with difficulty inured to the privations and fatigues of a soldier's life, especially when far from home" (p. 287). Exclusive of the cases that may have occurred among the troops at Constantinople and elsewhere, the number reported by M. Scrive as presenting themselves in the Crimea and previously at Varna, amounted to 6351. Of these, 1060 were discharged from the hospital; 3663 died; and 1628 were removed to Constantinople. The mortality thus occasioned by the disease reached the high proportion of 1 in 1.73. What the number of cases which occurred in the hospitals of Constantinople, or the mortality to which they gave rise was, we have not been able to ascertain.

Whether the disease prevailed to the extent naturally to be inferred from the magnitude of the figures just noted, is a question which is far from having been satisfactorily settled. Sure it is that in many of the cases reported under the head of typhoid, the disease cannot, with any sort of propriety, be held up as having exhibited in its purity the characters which impart to that fever the degree of individuality distinguishing it from other forms of febrile affections. Writing under date of the 27th July, 1855, M. Scrive says that, judging from the cases he saw in the various hospitals visited by him, he does not think they could be regarded as instances of true typhoid. He inclines to the belief they should more properly be viewed in the light of remittent fevers, occurring in men whose constitutions were deteriorated, and assuming a typhoid character (p. 215). It complicated other diseases, wherever it prevailed, and often constituted, when thus combined with typhus, a peculiar form of fever, the diagnosis of which was not always easily made out. In such cases the symptoms of adynamia usually appeared two or three days after the first septenary period.

"They certainly presented the physiognomy of typhoid fever; but on close examination great differences were found. Thus, the regularity of the periods

was wanting; the pathognomonic symptoms, as the rose lenticular spots, the sudamina, the gargouillement in the iliac fossa were not observed. The resemblance arose from the community of some abdominal symptoms. Thus, in typhus cases of this kind, the patients were affected with nausea, occasionally vomiting, and diarrhoea; a marked sensibility and general doughy feel (*empatement*) of the abdomen. But the abdominal symptoms were always accompanied with typhous stupor, in a less extent, however, than in the other forms of the disease. When the cases did not assume a greater degree of gravity than that just mentioned, a beneficial change occurred rapidly, and convalescence was short—which is not the case in typhoid fever. In other instances, the disease assumed a more dangerous aspect on the 13th or 14th day; the tongue became dry, parched, and covered with fuliginous—often bloody—matter; delirium succeeded, and became constant, accompanied with carphologia; the circulation and respiration became gradually weaker, the matter of perspiration assumed a fetid odour, and was gluey; the discharges of urine and fecal matter were involuntary, and death was preceded by large bed-sores."

But while entertaining the views mentioned respecting the nature of the above cases, M. Scrive does not appear disposed to deny the existence of real typhoid fever at all periods of the campaign, and under all circumstances. Indeed, he admits its prevalence, not only in a statement already referred to, but in several others scattered throughout this work. Of the propriety of this admission, no one will entertain a doubt who consults the volumes of MM. Cazalas, Jacquot, and others; for therein we find sufficient facts to satisfy us that the fever in question, both in its pure form and as an element of complication, prevailed to no inconsiderable extent, especially during the first winter of the campaign, both at Constantinople and in the Crimea, as proved by the symptoms observed during life, and the lesions found after death. Indeed, it would be difficult to see how the prevalence of the disease in an independent form could be doubted, when we find that it complicated not only paludal fevers, but almost every other disease—typhus itself; for certainly if the poison producing it could exercise its morbid influence on individuals labouring under other complaints, there is no reason why it could not appear in its pure form when attacking others free from such complaints. Add to this typhoid fever existed extensively in the English army, whose proximity to the French renders improbable the supposition that the cause existed among the former and not among the latter. If it prevailed less generally in the one than in the other, the explanation may probably be found in the fact, that the typhus poison, which, as we shall see presently, spread to an almost unprecedented extent in the former, without chasing away completely the typhoid, overshadowed the latter to a great extent, its product becoming paramount, and taking the place of that which continued to prevail almost exclusively in the English camp, attacking many of those who, in its absence, would possibly have suffered from the other disease, and becoming the principal element of complication.

*Typhus*.—Of all the diseases which affected the French army, none produced more disastrous effects—at least during the latter period of the campaign—whether under the walls of Sebastopol, at Constantinople, or in other places occupied by the troops, than typhus fever. The first mention of it as making its appearance about the besieged city comes from M. Scrive, who informs us that on the 24th of December, 1854, he visited the village of Karani, near Balaklava, and there recognized cases of one of the forms of typhus, to which the Turks give the name of *havavou-rouchou* (p. 135). In the monthly report for December the admissions

of typhus are noted. No mention being made of the disease in the like reports for October and November, we must conclude that it first broke out among the troops in December, when the cases amounted to 86, with a mortality of 10. During the next month, January, 1855, the number of cases rose to 154 (16 deaths). In February it reached 250 (26 deaths), and in March fell to 82 (14 deaths). From this period it went on diminishing, though irregularly, until November, when the number was reduced to 10 (6 deaths). (July giving 69—12 deaths, and April 61—8 deaths.) In the following December the disease broke out afresh in the most alarming manner; the admissions that month reaching 711 (323 deaths)—the number remaining in hospital on the 1st being 157. January furnishes 1,523 cases with 464 deaths. February 3,402 with 1,435 deaths, and March 3,457 cases with 1,830 deaths. In a word, while during the first year, from December, 1854, to November, 1855, inclusive, embracing therefore the whole winter, the number of admissions of typhus cases in the Crimean hospitals did not much exceed 700; the returns of the next four months exhibit the enormous amount of 9,116 admissions, with a mortality of 4,052. Of the balance, 794 were discharged cured; 2,589 were sent to Constantinople (where, as also on board of the transports, many died), while 1,838 cases remained in hospital on the 31st of March.<sup>1</sup> From the 15th of this last mentioned month to the 15th of June following, the returns of the typhus cases in the Crimean army give the following figures, which we place in tabular form.

Dates.	Remaining.	Admitted.	Sent to Constant'ple.	Cured.	Died.
15th March . . .	1,463	88	24	16	64
1st April . . .	1,907	110	28	50	51
15th April . . .	1,112	77	21	12	26
1st May . . .	928	60	30	6	24
15th May . . .	534	31	9	3	13
1st June . . .	298	7	26	5	4
15th June . . .	106	0	2	0	2

From what proceeds it is seen, that during the Crimean campaign, the French army passed through the ordeal of two epidemics of typhus fever. The one commencing in the Crimea during the cold weather of December, 1854; the second during like weather in December, 1855. From this place the disease spread to the troops and hospitals in Constantinople one month after its appearance in the Crimea, *i. e.*, in January, 1855, and January, 1856.

All the French hospitals were there invaded. Those of the plateau extending from Ramis-Chiftlik to Daoud-Pacha; the hospital of Candile on the Bosphorus suffered severely. In fact, of twenty hospitals and ambulances located in and about Constantinople, not one escaped. Subsequently it invaded the establishments situated at Gallipoli, Nagara, and on the Dardanelles. It appeared and committed considerable havoc in the camps of Masiak and Daoud-Pacha, on board of ships of war and transports, and in the large prison pontoons stationed at the Golden Horn, as also in the long line of tents pitched along the terrace situated between the old Byzantine ramparts and the fosse nearly opposite Maltepa and Daoud-Pacha, and the barracks of Foudouklé. Finally, it was carried to the

<sup>1</sup> Scrive, 278.



hospitals of Marseilles, Toulon, Porquerolles, Frioul, Avignon. It reached the hospital of the Val de Grace in Paris, Chalon, Neuchateau, &c. In the aforesaid hospitals and establishments the number of cases admitted during the first six months of 1856 amounted to 7,130, with a mortality of 2,995—the number remaining on the 1st of January being 28, and on the 30th of June, 38.<sup>1</sup>

"From official documents," says Mr. Jacquot, "the culminating point of the epidemic of 1854-5, as it existed everywhere, was attained in May and June, and succeeded to a period of increase, embracing the first four months of the year. This was followed by a period of decrease commencing in July and continuing through August."

Mr. J. thinks that the ultimate period should embrace April, and perhaps a part of February, inasmuch as the disease prevailed considerably during those months, though many cases were not, through ignorance of their true nature, reported as such. To this he adds that although the disease ceased as an epidemic at the time mentioned, it never disappeared completely, but continued to show itself sporadically between the two epidemics, and also after the close of the second, which finally took place at the end of June.

It may be mentioned here before closing this part of the subject, that the fever in question prevailed to some extent among the Sardinian and Turkish troops. Among the Russians it broke out towards the end of autumn or the beginning of winter, *i. e.*, after the army had left Sebastopol and were encamped in the valleys—when the hospitals being overcrowded with paludal cases, the fever was therein developed and spread widely. It extended its effects to Sympheropol, Odessa, Nicolaieff, where there was the like overcrowding. In some of these places it spread among the inhabitants.<sup>2</sup>

The whole number of cases which occurred in the Crimean army, as reported by M. Scrive (p. 345), amounted to 11,124—711 the first winter, and 10,413 the second (*ib.*). The mortality among these amounted to 6,018—329 during the first winter, and 5,689 during the second (p. 245). The average strength of the army being, during the first of these periods, 90,000, we have a proportion of 1 case in 128. During the second period the average strength of the troops had reached 140,000. The cases being 10,413, we have a ratio of 1 case to 13 $\frac{3}{10}$ th; and during the combined periods of the two epidemics, of 1 to 70 $\frac{7}{10}$ th. During the two epidemics the mortality was 1 in 2—1 in 2 $\frac{3}{10}$ th during the first, and 1 in 1 $\frac{8}{10}$ th during the second.<sup>3</sup>

The following tabular view presents a monthly return from September, 1854, to the beginning of July, 1856, of the number of troops in the Crimea, as also of that of the cases of typhus, and the mortality arising from it, from Dec., 1854, to May, 1856, when the disease ceased as an epidemic.

<sup>1</sup> Jacquot, 50.

<sup>2</sup> Alferiff in *Disc.*, 125-6. Jacquot, 60, 61.

<sup>3</sup> Scrive, 346.

	Dates.	No. of Troops.	Cases of Typhus.	Deaths.
1854.	September . . . . .	38,080	...	...
	October . . . . .	46,237	...	...
	November . . . . .	56,179	...	...
	December . . . . .	65,237	86	10
1855.	January . . . . .	78,502	154	16
	February . . . . .	89,308	250	26
	March . . . . .	96,165	82	14
	April . . . . .	91,258	61	8
	May . . . . .	107,760	10	4
	June . . . . .	121,887	0	4
	July . . . . .	118,655	69	12
	August . . . . .	119,251	20	13
	September . . . . .	125,680	5	3
	October . . . . .	138,532	11	5
	November . . . . .	143,250	10	6
	December . . . . .	145,120	734	323
1856.	January . . . . .	144,512	1,523	464
	February . . . . .	132,793	3,402	1,435
	March . . . . .	121,000	3,457	1,830
	April . . . . .	105,000	93	174
	May . . . . .	67,000		
	June . . . . .	25,000		
	July (6 days) . . . . .	5,000		

On this subject it must be remarked that the average proportion of cases to the number of troops exposed to the influence of the typhous poison, as also that of deaths to the number attacked, thus mentioned, has reference only to the totals of admission of the disease when developed spontaneously in the regiments, and reported as such; as likewise to the mortality occurring among such cases. To form a correct idea of the full extent of the spread of the disease, and of the entire mortality to which it gave rise, we must, as M. Scrive states, add, 1st, the large number of deaths which occurred among individuals affected with and admitted for other diseases—dysentery, scurvy, fevers, wounds—and who were subsequently attacked with and died of typhus. These, M. Scrive (p. 274) says, far exceeds the others. So numerous, indeed, were they, that he thinks himself justified in estimating the whole number at from 18,000 to 20,000. 2d. The deaths which occurred from the same cause in Constantinople and France, among the men who took the disease in the Crimea, and were carried thence while sick, or who sickened after their arrival.

M. Scrive remarks that, in elucidating the excess of mortality which occurred over that noted in ordinary times, during the prevalence of typhus in the Crimean ambulances, he finds that the number of such secondary and communicated cases may be estimated at 4,502. We may, he adds, estimate approximately at 7000 the mortality at Constantinople and in France. This will give us a total mortality from the disease in question of 17,515; which corresponds to a total of 35,000 cases.

This is not, we think, an over-estimate of the extent of the disease, and of the mortality to which it gave rise among the French troops. It is true that it appears to exceed greatly the items furnished by Baudens, who in a tabular return of the movements of the hospitals and ambulances of the Crimea, Constantinople, and Turkey, from the 10th of April, 1855, to the evacuation of the country, early in August, 1856, lays down the whole number of cases at 13,540, and of deaths at 7,516. But by the same return the number of unspecified fevers is computed at 112,287, with a mortality of 18,360.

May we not presume that a very large number of these were in reality cases of typhus, reported under the simple appellation of fever or typhoid fever, owing to a false appreciation of their true nature?

The same M. Baudens does not hesitate to proclaim, both in articles he published in the *Revue des Deux Mondes* and in his volume, already so often referred to, that the invasion of typhus fever in 1855 constituted the greatest disaster the French army encountered during the Eastern expedition, and which subjected it to the worst and most painful of the many trials it was compelled to undergo. Cases of the disease constituted in February of that year, he says, one-fifth of all the sickness then prevailing; amounting to 40,000 in the Crimea and in the Bosphorus, of which one-fifth, or 8,000, were doomed to die. "People speak with dismay of the plague of Egypt in 1792 (1799?). Agreeably to the most exact information, as we are informed by the illustrious Desgenettes in his *Histoire Médicale de l'Armée d'Orient*, the epidemic carried off about 700 men. Our typhus caused ravages of a much more disastrous kind" (p. 260).

Be this as it may, we find from the tabular return published by M. Scrive (p. 485), that the number of typhus cases treated in the hospitals of Constantinople amounted to 8,739 (3,840 from Varna and the Crimea, and 4,899 originating in the place), and that the mortality did not fall short of 3,407. Under the head of feverish (*fiévreux*) we have a total of 71,152, with a mortality of no less than 12,549, or 1 in 5.6. What fever but typhus would contribute to raise the mortality so effectually as to furnish such a high percentage? According to another authority, M. Jacquot (p. 63), the military hospitals at Constantinople, alone, received, from Jan. 1st to June 30th, 1856, 7,102 cases, and experienced a loss of 2,995, or a little less than 1 in 2. Add to this that many cases occurred at Gallipoli, Nagara, Maslak, Ramis-Chiftlik, and that many deaths occurred there—that the disease spread to the war ships and transports—that for a time 200 died every day, between the Crimea and Constantinople (*Baudens*, 275), and that the disease accompanied the army to France, and caused there and in the vessels transporting the troops thence many deaths; and we shall feel disposed to give full credence to the statement of M. Scrive.

The latter author states that the ratio of admissions into the hospitals of the Crimea to the effective strength of the army, from October, 1854, to October, 1855, was 1 to 10; and that of deaths to cases was also 1 to 10. But during the four months of the winter of 1855–1856, the number of cases admitted was in the ratio of 1 to  $11\frac{1}{6}$  of the strength of the army, while the ratio of deaths to the sick reached 1 to  $5\frac{1}{6}$ . This loss had never before been experienced but in the month of June, rendered memorable by great military events, and the simultaneous prevalence of cholera in an epidemic form. The mortality from pure typhus, during that time, was greater still, being in the proportion of 1 death to  $2\frac{3}{8}$  cases. "And in this estimate we do not take into account the large number of patients sent to Constantinople, and who, either during the passage or in the hospitals of that city died of the disease, and thereby add a large contingent to the amount of the mortality" (279).

There can be no doubt, judging from the description we have of the symptoms, pathological lesions, efficient or productive causes, mode of progression, &c., of the disease here referred to, that it is fairly entitled to the name of typhus, in other words, that it differs in no essential respects from the fever known everywhere under that appellation, and should not be confounded with any other febrile affection.

On this question opinion can scarcely differ among those who carefully examine the posthumous volume of M. Jacquot and various other writings on the medical history of the Crimean expedition, issued by the army physicians, and particularly the interesting account of the proceedings of the *Imperial Medical Society of Constantinople*. In the latter volume will be found recorded *in extenso* the sentiments on the subject not only of a large number of the French members of that society, whose ample experience in the disease, and intimate knowledge of the pathognomonic character of the only fever with which it could well be confounded—the typhoid—entitled their views to entire confidence; but also of several English, Russian, Austrian, and other physicians, who carefully observed the disease in the French and other hospitals. With the medical corps generally, in and out of the society, the question of the distinct typhus nature of the disease does not appear to have been held in doubt; few, if any, advocating the opinion that the fever was nothing more than the common typhoid; for, though admitting that the latter showed itself in numerous instances, they maintain that, in the vast majority of cases, the disease they encountered presented a different aspect, and approximated itself to the fever described by Hildenbrand, Pringle, and hundreds of others; in other words, to the true typhus, camp, hospital, or ship fever, modified, it is true, by a variety of morbid influences, so as to assume several forms during the course of the same season, and especially at its several epidemic recurrences; but still, nevertheless—so to say—a distinct homogeneous individuality—the true typhus.

Nor is it only from the observations collected in the French hospitals that the opinion of the true typhus nature of the fever is founded. Dr. Alferieff, who was commissioned by the Russian government to investigate the character and causes of the fever prevailing among the troops, and saw much of it at Odessa, subsequently visited the Crimea and Constantinople, where he had ample opportunities of observing the existing epidemic. He fully recognized the identity of the disease in these different places. Now what does he say respecting the fever among the Russian soldiers? In the report of the remarks he offered at a meeting of the Medical Society of Constantinople, we are told:—

“M. Alferieff found perfect the description of typhus as given by Hildenbrand. It is only necessary,” he says, “to change a few terms which were in harmony with the state of the science at the time he wrote, but are no longer so with the progress the latter has since made. The epidemic of the Russian army presented all the traits given by Hildenbrand in his description” (p. 126).

Certainly no one who reads this description will refuse to admit that though this celebrated writer regarded as, and included under the generic term of typhus, some forms of febrile complaints which the investigations of modern pathologists have shown to be distinct in point of causation, symptomatology, and anatomical lesions, from that disease; though his description embraces, as belonging to a variety of typhus, cases which we cannot regard otherwise than as typhoid, the disease he had principally in view, and which constituted the basis of his work, was the true typhus; and if such was the form of fever prevailing in the Russian hospitals, we cannot suppose, even were we not fortified by the testimony of M. Alferieff, that the French troops suffered at the same time from a different febrile complaint. In the English army, too, numerous cases occurred during the first season of the war, more particularly when the usual causes of typhus

infection exercised their influence to a considerable extent, which were readily recognized as true typhus by the attending physicians, who, from their antecedent knowledge of this disease, were fully able to decide on a question of the kind. The presumption naturally is that the disease which affected one camp was the same as that prevailing in the other. The fever, it is true, appeared in, and also disappeared from, the English before it did from the French hospitals, and scarcely prevailed in the former hospitals at the time it was spreading extensively in the latter. But this is easily explained by the well-known fact that the causes of the disease which, at first, did not exist so extensively among the French as among their allies, increased among the former while they abated among the latter; and that during the second winter they attained frightful proportions in the French camp and hospitals, while they had disappeared completely in the English. Add to this that the English physicians, who observed the fever affecting the French army, pronounced it to be typhus. We may mention in connection with this subject, that the cases of the Crimean fever imported into Toulon and other ports of France, where typhus is well known, were recognized as such, and not as anything else; and that those that reached other places where the disease is not usually seen, but where typhoid fever is familiar to every physician, they were regarded as different from the latter. But we need not prosecute this subject any further. Taking all that precedes into consideration, we may, indeed, regard M. Baudens as speaking in the name of the large majority of the medical officers of the army, when he tells us:—

“The typhus of the Crimea has definitely settled the question of the identity or non-identity of the two diseases. It is no longer possible to confound them together, although they present more than one link of parentage, and an apparent community of origin” (p. 229).

But although the many physicians who have expressed their views on the subject, orally or in writing, have arrived at the conclusion that in a large number of the fever cases observed in the Crimea and in the hospitals of Constantinople, the disease was of the kind mentioned, some few among them feel disposed to differ from their colleagues, and among them may be cited a writer of high authority—M. Cazalas—who not only refuses to recognize any difference, except in regard to degree of violence, between typhus and typhoid fevers, but maintains that in his hospital at Constantinople he saw no true typhus—nothing but typhoid phenomena due to an accident superadded to some other disease—a mixture of divers morbid ailments, among which the malarial element played a conspicuous part.<sup>1</sup>

M. Cazalas, however, does not seem to have made many proselytes to his views, though, as we have seen, all agreed in the fact, that in many cases the malarial, typhoid, and typhus poisons combined together, and thereby produced hybrid diseases. But, in the majority of cases, no such combinations existed, and the distinctive characters and the purity of the fever were easily made out during life, and confirmed by the morbid changes revealed on dissection, as well as by a consideration of the external agencies through the influence of which it arose, its mode of propagation, &c.

We need not, and cannot, from want of room, enter fully on the subject, and must content ourselves with the following statements derived from competent authorities, which, we think, settle the question—showing, as they do

<sup>1</sup> Discuss., p. 25.

clearly, the principal points of dissemblance existing between the disease in question and typhoid fever, and, on the other hand, the identity of the former with true and indubitable typhus, as it has been observed, carefully studied, and described elsewhere. It is proper to premise, however, with a view to render still more evident the correctness of the conclusion to which these statements lead, that the duration of the Crimean fever under consideration, was considerably shorter than that of the typhoid, and similar to that of ordinary typhus; that the same remarks are applicable to the duration of convalescence; that, similarly to what occurs in true typhus, the course of the disease, in the Crimean fever, was more irregular than in typhoid fever, the attack more sudden and abrupt, the forms assumed more varied; while many of the symptoms of typhoid fever—sudamina, epistaxis, coma, gargouillement, diarrhoea, &c.—were either totally absent in the other, or appeared seldom and with less intensity. Dr. Bryce, who saw much of the disease, tells us that in the typhus studied in the French hospitals, as elsewhere, there were present the characteristic maculæ and petechiæ very distinguishable from the rose-coloured papulæ of typhoid fever. In the former there were absent the abdominal symptoms so prominent, and almost pathognomonic of the latter. Equally absent were the anatomical lesions which constitute the character of simple continued fever—namely, morbid states of the intestinal follicles, mesenteric ganglions, and spleen.

"Moreover," Dr. Bryce continues, "the identity of our home-bred typhus with the typhus of the French camp is shown—1st, in that both have their origin and development under the influences of the same concurrent causes, which are over-crowding, accumulation of filth, starvation, and wretchedness; 2d, that both have the like modes of attack, the same characteristic eruptions, similar incidental complications, run a parallel course, and present analogous critical phenomena; lastly, both are potentially infectious, and essentially functional disorders: that is, communicate by human intercourse, and have an existence independent of, and are capable of proving fatal without any appreciable local or structural lesion" (pp. 108-9).

Convincing as the foregoing statement is to us, and conclusive as it was to the majority of the physicians who encountered the disease at or about the close of the war, it would appear that at the outset of the epidemic, and indeed for some time after, its true nature was by some of the medical officers of the army—especially at Constantinople—misunderstood, and that the cases were reported under different heads. According to M. Jacquot, the typhus of 1855 did not exactly resemble that of 1856:—

"It would seem," he says, "as if it had experienced some difficulty in establishing itself, or at least in assuming a control over other diseases, and presenting a distinctness of symptomatology calculated to allow it to be readily recognized." He acknowledges that some time, indeed, elapsed before its identity was made out; and that the period of decision would have been still longer delayed had it not been for the authoritative declarations of M. Levy, medical inspector, and soon after of M. Fauvel, sanitary physician at Constantinople, who discovered the nature of the epidemic.

At the origin there were as many accidents—typhic states—associated with other affections, as typhus fever cases, properly so-called; and these accidents which were thus added to divers diseases, consisted at times of a tolerably complete combination of typhic phenomena; at other times of isolated kindred phenomena. In one case there was hebetude; in another, flighti-

ness at night—here inflamed parotids—there persistent headache, cutaneous eruptions, &c.

In 1856, the disease from the outset in January, though assimilating itself somewhat to the epidemic of the preceding years, assumed rapidly an independent and well marked individuality. The cases became more uniform, and finally appeared as if having passed through the same mould (p. 318). But whether recognized or not, as early as January, as may be inferred from the statement of M. Jacquot, it would appear from a numerical return furnished by Dr. Bryce (p. 97) of the diseases treated in the hospitals of Constantinople during the months of January, February, and March, 1856, that typhus fever does not figure in the first of these months, and was only formally registered in February, when not less than 3,489 cases were reported. Of course, many cases of real typhus existed there during the previous months, but were registered under some other denomination. This delay resulted, it is alleged, from compliance with the nomenclature made use of in the Crimea. Previously the fever was marked on the books and bed tickets by some insignificant or inappropriate terms, typhic or typhoid state, typhoid fever, &c. This erroneous proceeding, however, was not intentional on the part of those who committed it. On this subject Dr. Bryce says:—

“In casual visits to the French hospitals last summer, I noticed many cases of fever marked on the bed tickets as typhoid, or more indefinitely as *état typhoïde* or *typhique*, which English physicians would unhesitatingly have pronounced common typhus. Presuming this nomenclature to be more significant of political reserve than indicative of medical diagnosis or knowledge, I gave little heed to the circumstance. It was not till a later period, when placed in responsible clinical contact with the sick, and familiar communication with the French medical staff, that I fully comprehended the amount and sincerity of the discrepancy which existed, and had always prevailed among scientific observers, respecting its true nosological place. It is acknowledged by Mr. Thomas, that the same affection abounded in the hospitals during the winter of 1854-5; and that, losing some of its intensity last summer and autumn, it reappeared this winter under similar conditions, and with similar symptoms to the preceding. The French surgeons, nevertheless, continued to dispute its nature; and up to the present moment several able papers have been read, and four public discussions taken place at meetings of the Imperial Medical Society here, most numerously attended, to elucidate and determine the question of its identity with typhus. It is thus made known that some writers and speakers consider the epidemic to be a variety of typhoid fever (*entérite folliculeuse*, &c.), others, malignant remittent fever; the majority pronounce for the true typhus of camps and cities. The error is excusable in French practitioners, who have had very rare opportunities of seeing typhus in their own country.”

Dr. Bryce could have no hesitation in regarding cases so registered and considered as instances of the disease in question.

The typhus of the Crimea did not always present itself in its pure and unadulterated character. Indeed, while it almost invariably associated itself with all the prevailing complaints, thereby imposing, to a greater or less extent, its character upon them and aggravating their fatal tendencies, it was itself very frequently complicated with scurvy, thoracic inflammations, remittent fever, cholera, diarrhoea, dysentery, and even with typhoid fever and hospital gangrene.

As regards the question of the origin and mode of transmission of the disease, the French medical officers, and such of the foreign physicians as visited the hospitals placed under their charge, seem to have been almost

unanimous. Differing, in toto, on the first of these points from M. Boudin,<sup>1</sup> a high authority in France on all matters connected with military medicine and hygiene, and some other French writers, and Bancroft, Watson, and others, in England, who deny the spontaneous origin of typhus under any circumstances, and place the disease on that point in the same category with smallpox and measles, the Crimean physicians held, that the fever they were called upon to treat could be traced to no appreciable foreign cause, but arose from the action of local and removable causes—overcrowding, animal exhalations, filth, defective aeration and ventilation, fatigue, gross and unnutritious diet, aided by depressing and continuous affections of the mind, loss of sleep, &c. Such was the belief, with one exception,<sup>2</sup> of all the members of the Imperial Med. Soc. of Constantinople, who took part in the discussions held on the subject, and whose views are recorded in the Transactions of that body<sup>3</sup>—Quesnoy (p. 43), Valette (p. 39), Arnaud (pp. 60, 118, 119), Garreau (p. 64), Grellois (p. 100), Roux (pp. 110, 111), Sotto (p. 112), Fauvel (pp. 166, 182); as also of Jacquot,<sup>4</sup> Bandens,<sup>5</sup> Scrive,<sup>6</sup> Cazalas,<sup>7</sup> Bryce,<sup>8</sup> some of whom recorded their views on the same occasion, and subsequently issued them in separate publications, to which we have so often referred.

Nor was there much difference of opinion relative to the mode of propagation of the disease. All or nearly all the physicians who encountered it, either in the Crimea, in Turkey, or afterwards in France and Algiers, maintained that when once arising through the influence of the causes mentioned, it was transmissible to the healthy, or to individuals labouring under other complaints, or through exposure to, or residence in hospitals or ships containing, or having recently contained large numbers of patients affected with the fever—such physicians attributing the effect to emanations, specific or otherwise, from the sick; in other words, to contagion, either direct from body to body, or, as was more generally believed, indirect, through the medium of a polluted atmosphere. In illustration of the diffusion in that way, M. Jacquot states, on the authority of the Superior of the Sisters of Charity of the Convent at Galatia, that out of about 150 Sisters employed in the service of the military hospitals, from the 1st of February to the 1st of June, 75 were attacked with typhus, properly so called, and that of these 15 died. The mortality among the chaplains and physicians was very large. On the 17th of March ten of the attendants in the hospital of Pera were seized with that disease. In M. Jacquot's own wards, twelve of the attendants were at one time under treatment for the same (p. 95). M. Bandens saw it in some of the hospital wards communicated from bed to bed, and attack individuals who, before the arrival near them of a typhus patient, were labouring under some trifling complaint. In a particular instance cited by him the fever spread to all the attendants. Fifteen physicians out of sixteen were attacked, and none of the nurses escaped (p. 229). Dr. Bryce states that in 57 days of January and February, 1856, 603 out of 840 orderlies on service in 12 hospitals were attacked with typhus. On the 15th March there were in the hospitals of the Russian embassy (officers' hospital)

<sup>1</sup> *Traité de Géographie et de Statistique Médicale*, II. p. 486.

<sup>2</sup> Dr. Zenaro.

<sup>3</sup> *Discussion sur le Typhus Observé dans les Armées pendant la Guerre d'Orient*. Constantinople, 1856.

<sup>4</sup> D. 29—Wk. 305.

<sup>5</sup> 230.

<sup>6</sup> 135, 270, 295, 407, 8, 9, 412.

<sup>7</sup> xv. xvi. D. 3.

<sup>8</sup> p. 109.



81 surgeons in different stages of typhus, and only one army officer, also five priests attached to the hospital service of Constantinople. Finally, of the whole medical staff who served with the French army from the time of its arrival at Gallipoli in 1854, down to 28th April, 1856, numbering about 350, 72 fell victims to their professional duties, that is, twenty per cent., being three times the proportionate loss of the officers of any other service from all causes (pp. 111, 112).

But general as this belief in the contagious nature of the disease, based on the facts mentioned and others of like import, evidently was, several of the medical officers of the army, most conversant with the history of the epidemic, appear disposed to deny that the fever exhibited evidence of contagion in the strict acceptation of the term. Among these dissentients may be cited M. Netter, whose position as hospital physician enabled him to see much of the disease. In the course of a discussion which took place at the Medical Society of Constantinople, M. Netter referred to several remarkable instances of exemption from the disease, which could not have occurred had the latter been really endowed with truly contagious properties. We have room but for one of these:—

“The number of Sisters of Charity employed in the hospitals of Constantinople from the 1st of January to the 30th of April, 1856, was 160, of whom 68 were attacked with typhus. Of the latter, 14, of whom 5 died, were treated in the hospitals. The 54 others were treated in the infirmary of *Nôtre-Dame de la Providence*, and furnished 6 deaths. The first was admitted on the 1st of February, and on the 30th of April 12 remained under treatment. Of the 36 Sisters employed in the service of the infirmary, 30 of whom watched alternately their sick companions during entire nights, not one contracted the disease. There was not, therefore, a single case of contagion in the establishment” (p. 71).

From this and other facts observed by him, M. Netter concludes that typhus fever is the result of a miasmatic poison, which is first produced in the atmosphere through the agency of some form of organic matter, and subsequently multiplied by means of a process of fermentation whenever placed in contact with matter of the same kind. “Originating in the Crimea,” he says, “this miasm was carried to the hospitals of Constantinople with the products of the secretions of the sick, products which were accumulated in the mattresses, coverlids, in the flooring, &c.” Hence the hospitals became so many foci of infection, while the civil establishments, kept in a cleanly manner by the Sisters of Charity, remained inoffensive to the last (p. 72). If this theory is correct, it follows that the disease is not the product of a specific, secreted, and non-preventable contagious poison, but often arises spontaneously from the operation of a miasm, due to certain animal exhalations, secretions, discharges, &c., issuing from the bodies of individuals in health or sick, more especially from the latter when affected with adynamic diseases, when concentrated in overcrowded, ill-ventilated, filthy habitations; or arising from noxious effluvia having a different and external origin; that this miasm may be, and is often, carried far from its original place of development by various agencies too well known to be mentioned; that it has a tendency to multiply itself and extend its effects, whenever it meets in its new abode with conditions similar to those through which it was created, but that unlike true specific contagions it may, being no longer, if it ever was, connected with the body, be prevented or removed by the employment of judicious hygienic measures.

The opinion of M. Netter on the subject in question does not differ

essentially from that expressed by some of his colleagues; for though these may talk of the disease being endowed with contagious properties, it is easily perceived that they use the word contagion in a very indefinite sense; that with them it means little more than the vague expression of the existence of a power of transmission, by virtue of which the disease is communicated to the healthy or to individuals affected with other complaints, when these, under certain contingencies, are placed in the vicinity of the sick or in localities in which such sick were recently and for some time confined; and that they in no instance show that this power of transmission is due to a specific poison formed in the body of the sick and independent of external morbid agencies, as is the case in diseases truly contagious. But be this as it may, as regards the approximation of the views of these physicians to those of M. Netter, there can be no doubt that the latter will be found closely allied to, if not perfectly identical with, those suggested some ten years ago by the writer of the present article.

It may be mentioned in this connection, that however transmissible the disease may be admitted to have proved within the precincts or wards of the hospital establishments of the Crimea, Turkey, or elsewhere, it did not extend beyond. The greater number of these establishments, it is true, were isolated; but such was not the case with all. Thus, the hospital of the Medical School at Constantinople was situated on one side of the street, while the other side was occupied by the civil population. The civil hospital of Pera and the military hospital of the Russian embassy were in the centre of populous quarters of the city, and were nearly touching some private houses; and yet, notwithstanding, the disease did not spread. In the Crimea, tents and barracks occupied by officers were spared, though placed amid those of soldiers among whom the fever prevailed extensively and fatally.

To this rule few exceptions may be pointed out, but they will be found to have occurred, according to M. Jacquot, in besieged towns or closely blockaded places, as in Tchistinakeia near Sympheropol, where the sick were located in almost close contact with the civil population.

R. La R.

ART. XVI.—*Histology of the Spinal Cord.*

1. *Researches on the Development of the Spinal Cord in Man, Mammalia, and Birds.* By J. LOCKHART CLARKE, F.R.S. From the Philosophical Transactions. Part II., 1862. 4to. pp. 28. With 4 plates.
2. *Notes of Researches on the Intimate Structure of the Brain.* Third Series. By J. LOCKHART CLARKE, F.R.S. From the Proceedings of the Royal Society. Vol. XII., No. 57. 8vo. pp. 7.
3. *A case of rapid "Wasting Palsy" from Structural Disease of the Spinal Cord.* By J. L. W. THUDICHUM, M.D.—*The Investigation of the Nervous Centres with Comments.* By J. LOCKHART CLARKE, F.R.S. From Dr. Beale's Archives of Medicine. No. XIII., 1863. 8vo. pp. 22. With 5 plates.

To Bidder and Kupffer, and still more recently to Kölliker, we are mainly indebted for our knowledge of the histology of the development of the spinal cord in birds and the higher animals. Their investigations have led them to the following results:—

"1. After the closing of the laminæ dorsales, the cord at first consists of a canal, the walls of which are composed of cells of one uniform kind, and disposed in a radiating form.

"2. In the next place, this wall of cells divides into two layers, of which the outer forms the gray substance, while the inner one appears as the lining of the central canal.

"The white substance makes its appearance later than the gray, by the cells of which it is without doubt furnished as an outer layer or covering. The white columns are four in number, two on each side; and to these a white commissure is added. There are no lateral columns; those which are so called are subsequently formed as an extension of the anterior columns."

In the *Philosophical Transactions* for 1859 Mr. Clarke showed that, in the adult spinal cord of man and all vertebrate animals, the white columns as well as the gray substance are everywhere interspersed with granular nuclei, of which some are attached to the sheaths of the primitive nerve-fibres, while others are imbedded in the intervening connective tissue. In the gray substance these nuclei are more abundant than in the white, and have much resemblance to many of the free nuclei or cells, which are certainly in connection with nerve-fibres, and with which they are freely intermixed. To the study of the development of these nuclei Mr. Clarke has devoted much time and attention with the hope of determining the histological relation which they bear to the other elementary tissues of the cord. We could not with advantage to our readers follow him into the minute details of his elaborate researches, without constant reference to the explanatory plates with which the memoir on the spinal cord is illustrated. From the concluding pages of this memoir, however, we borrow the following statements which exhibit in a general manner the conclusions to which our author has been conducted by his admirable labours:—

"We have seen that in its earliest stage of development, the spinal cord consists of a canal surrounded only by one uniform or homogeneous layer of small cells or nuclei, which are not distinguishable from each other in appearance, and

are so closely aggregated as to seem in actual contact. To call this single layer the epithelium of the cord, appears to me about as incorrect as it would be to call the germinal membrane of the ovum the mucous or internal of the two layers into which it immediately separates; for in the second stage of its development, we find that this single and homogeneous layer constituting the entire substance of the cord, while it continues to increase in depth, undergoes a differentiation into two distinct layers—an inner, constituting the true epithelium, and an outer, constituting the gray substance; and although the former does not undergo the histological and morphological changes which subsequently take place in the mucous layer of the germinal membrane, yet it is probable that *after* the production of the outer or gray substance, it differs in its histological character from the originally homogeneous layer. This differentiation of structure proceeds very gradually, and is not at first marked by any decided line of separation, or by any difference in the appearance of the structural elements. At the same time there is gradually formed around, and apparently secreted from, the small cells or nuclei, a granular substance that forms into processes or fibres, and constitutes a continuous network by which all the nuclei or cells of both layers are uninterruptedly connected. In the gray substance itself there is no apparent difference in structure between its anterior and posterior portions, although in each portion darker and more-closely aggregated groups of nuclei may be observed in connection with the roots of the nerves. But as development progresses, a diversity of structure ensues; for while the nuclei of the *posterior* gray substance, although rather more granular than at first, have scarcely advanced in size, those of the *anterior* substance have increased to double their original diameter, and are connected by thicker fibres, which form a coarser and more granular network. At the same time, around the separate groups of the latter substance, the granular network between the nuclei assumes a more sponge-like structure. Meanwhile, within the group, there are formed from the nuclei a number of large, roundish or irregular but adjacent cells, with thick nucleated walls. It is quite evident that the nucleated tissue constituting the walls of these cavities and the network around them is in every respect similar in appearance to that which is very commonly assumed by the connective tissue of parts external to the cord.

"It appears, then, that in these early stages of development there are at least two kinds of free nuclei in the gray substance of the cord. The one kind appear to develop the general network of tissue which pervades the entire structure, but proceed no further; whereas each of the other kind, while connected with this network as well as with nerve-fibres, develops a nucleated cell with a nucleated wall which is still connected, and ultimately blended, with the surrounding reticular structure. In the cells of the intervertebral ganglia, although the process appears to be *essentially* the same, there is some difference in the appearance they present in the earlier stages of development. As development advances, these nuclei or small cells of the intervertebral ganglia simply enlarge, at first, but at the same time are connected with each other and with intervening granular nuclei by fine fibres. At a later period a very distinct and well-defined nucleus, surrounded by a variously-shaped granular mass, makes its appearance within each cell; while its surface becomes the cell-wall, which at first is thin, but gradually increases in thickness. Now the surfaces of these cells are in connection not only with the intervening nucleated fibres which are continuous with the connective tissue forming the sheath of the ganglion, but also with the walls of the adjacent bloodvessels; and it is probably through the medium of this nucleated tissue that the developing cells are supplied with nutritive fluid. Indeed, if we except the muscular fibre-cells, with which some of them are provided, the walls of the bloodvessels are only a part of pia mater and connective tissue between them. On examining the layer of pia mater which immediately surrounds the cord, it may be seen to connect the walls of the bloodvessels which it contains with the sheaths of the intervertebral ganglia, and, through this, with the sheaths of their nerve-cells, on one side, and on the other side with the connective tissue or pia mater within the cord itself. Since the sheaths of the nerve-cells have been shown to be continuous with, and indeed to form a part of, the reticular connective tissue of the cord, which is itself continuous with the pia mater of

the surface, it is evident that the processes of the epithelium, the pia mater and connective tissue within the cord, the walls of the bloodvessels, and the sheaths of the nerve-cells must be all uninterruptedly continuous with each other. But the sheaths of the nerve-cells are certainly connected with the surfaces of their granular contents; and in the fully-developed cord, where the cell-sheaths are much finer and thinner, processes from the cells are continuous by fine subdivisions with the surrounding reticular structure. These observations, then, appear to throw important light on the question which I formerly proposed, as to whether there is any actual and essential difference between the connective and the true nerve tissue, or 'whether the connective tissue of the cord be intermediate in its nature, passing on the one hand into nerve-tissue, and on the other into pia mater.' We have seen that the cell-sheath or wall is the product of, and indeed is constituted by, the very surface of the primitive nucleus or cell, and that, while it ever after remains in connection with its contents, it forms a part of the surrounding connective tissue, which is itself a prolongation not only of the pia mater of the surface, as well as the walls of the bloodvessels, but also of the processes of the epithelium. But although there is this uninterrupted continuity between all the constituent elements of the cord—although, perhaps, the nerve-tissue actually changes by insensible degrees into the tissues with which it is continuous—and although the cell-wall, which forms part of the surrounding reticular structure, is a product of the primitive nucleus, there is yet no ground for believing that the connective tissue, as such, can ever develop itself into nerve-tissue, any more than that any one of the differentiated parts of a fully-developed organ can reproduce the entire structure; for the nerve-cell, although it develops from itself its own sheath, which forms part of the nucleated connective tissue, produces something more than this tissue, viz., the granular contents of the cell.<sup>1</sup>

"We know that the processes of the nerve-cells constitute the axis-cylinders of the vasomotor nerves distributed to parts external to the cord; and therefore it seems probable that the finer processes which are lost by subdivision in the pia mater or connective tissue within the cord are the means of transmitting nerve-power to that tissue and to the coats of its bloodvessels, from which, by their uninterrupted connection with them, as already shown, the nerve-cells in return receive their supply of nutriment."

The second of the three papers under notice is occupied with an account of the minute anatomy of the cerebral convolutions, the valve of Vieussens, and the cerebellum, together with a description of the course of the fibres of the central white substance of the brain through the convolutions.

The valve of Vieussens, according to Mr. Clarke, consists of four different kinds of layers: 1st, An inferior layer composed of epithelium and continuous with that of the fourth ventricle; 2d, a stratum of longitudinal nerve-fibres, continuous with the white substance of the inferior vermiform process of the cerebellum; 3d, a layer consisting of a multitude of round, granular nuclei of about the 3500th of an inch in diameter, traversed by fibres derived from the subjacent layer; 4th, a superior layer, chiefly granular, but also interspersed with nuclei of the same kind.

Most of the convolutions of the brain consist of eight distinct and concentric layers. The first or superficial layer is a comparatively thin stratum of fine and closely-packed fibres. The second is of a pale or whitish colour, and several times thicker than the first. It is composed of two sets of fibres and a small number of scattered nuclei, which are round, oval, fusi-

<sup>1</sup> Philosophical Transactions, 1859, Part I. p. 442.

<sup>2</sup> There can be no doubt that a considerable proportion of the gelatinous substance and other parts of the posterior cornu are of the nature of pia mater; but amongst this there are numerous small nerve-cells. As I have dwelt, however, on this point in another place (*Phil. Trans.* 1859), I need not repeat my remarks.

form, or angular. The third layer is of a gray colour, from two to four times as thick as the one above it. It is densely crowded with cells of small size, but of different shapes, in company with nuclei like those of the preceding layer. The fourth layer is of a much paler colour. It is crossed, however, at right angles to its plane by narrow, long, and vertical groups of small cells and nuclei of the same general appearance as those of the preceding lamina. These groups are separated from each other by bundles of fibres radiating towards the surface from the central white substance, and, together with them, form a beautiful and fan-like structure. The fifth layer consists of the same kind of vertical and radiating groups of small cells and nuclei; but the groups are broader, more regular, and together with the bundles of fibres between them, present a more distinctly fan-like arrangement. The sixth layer is again paler, and somewhat whitish, but contains some cells and nuclei which have a general resemblance to those of the preceding layer. In the seventh layer, and in the eighth layer, is of a reddish-gray colour of about the same depth as the preceding, and contains the same kind of cells and nuclei, but in much greater numbers, and mixed with some others of rather larger size. The eighth layer is the central white while the stem or axis of the cerebellum.

The investigations of Mr. Clarke in the minute structure of the cerebellum confirm, in the main, the observations of Gerlach.

Dr. Thudichum's case of wasting palsy is full of interest not only as a clinical study, but also on account of the remarkable manner in which the symptoms, manifested during the sickness of the patient, were explained by the anatomical lesions discovered after death.

re at least  
and appear  
ture, but  
of it with this  
and coated wall  
the reticular  
ss appears  
They present  
ent nuclei or  
cont the same  
nered by fine  
ro rounded  
gran each cell;  
fibre gradually  
section not  
ular, in the con-  
M walls of the  
centric nucleated  
of fine indeed, if we  
and seed, the walls  
fibre between  
fibre around the  
it contains  
Phil the sheaths  
Therective tissue  
stance among  
cells have  
amongst the reticular  
this point the pia mater of  
No.

## BIBLIOGRAPHICAL NOTICES.

ART. XVII.—*Transactions of American State Medical Societies* :—

1. *Transactions of the Eleventh Annual Meeting, for the years 1861, '62, and '63, of the Illinois State Medical Society*, held in Jacksonville, May 5, 1863. 8vo. pp. 80. Chicago, 1863.
2. *Transactions of the Eighteenth Annual Meeting of the Ohio State Medical Society*, held at Ohio White Sulphur Springs, June 16, 17, 18, 1863. 8vo. pp. 94. Cincinnati, 1863.

1. At the session of the *Illinois State Medical Society* for the year 1863, the annual address with which the business of our professional associations are so generally introduced appears to have been dispensed with, the volume of *Transactions* before us commencing at once with reports of committees on professional subjects.

The first of these reports is on "Typhoid Fever," by Dr. H. NOBLE, of Heyworth. This paper is not without interest, though it sheds but little additional light upon any of the mooted questions relative to the etiology, pathology, prognosis or treatment of typhoid fever—disease which is becoming every day of deeper interest to the physician in consequence of its increasing prevalence, and the fact that it has in nearly all of the malarial regions, of Pennsylvania at least, supplanted in great measure the remittent and intermittent fevers which had been previously considered to be their essential endemics.

The next report is that of a special committee on "Diseases of the Eyes," presented by Dr. E. L. HOLMES, of Chicago.

In explanation of the extensive prevalence of conjunctivitis in Illinois and the northwestern portions of the United States generally, Dr. Holmes refers mainly to the dryness of the atmosphere, the brightness of the sun's light, the constant winds, loaded with minute portions of dust, which sweep over the unbroken level of the country, and the reckless manner in which the population exposes itself to these influences. Several of the influences enumerated are unquestionably the same which render conjunctivitis so common a disease in Egypt and Syria. That they are the chief causes of this malady may be inferred from the fact that, in the majority of the cases examined the attack occurred in summer. It is worthy of remark, also, that in Chicago and other places near the lake, where the atmosphere is much moister than in those at a distance from it, conjunctivitis is comparatively rare.

According to Dr. H. a common cause of the spread of catarrhal ophthalmia is contagion, which is rendered the more efficient by the manner in which the small dwellings in the northwestern States are often crowded with people, and by the careless habits of their inmates as regards cleanliness; the disease, when it breaks out in a household, being quickly communicated from one of its members to another by the use in common of the same handkerchiefs and towels.

It is well known that after some penetrating wounds of the eyeball an obstinate chronic inflammation of all the deep-seated tissues is liable to supervene, resulting in the entire disorganization of the organ; and that in these cases the uninjured eye sometimes becomes sympathetically affected. It is a well-established doctrine that the surest way to save the eye when thus sympathetically affected is by the partial or total extirpation of the wounded one. Dr. Holmes goes further, and recommends the extirpation of the injured eye in all cases at once before the other shows any sign of suffering, a practice which, we conceive, would lead to unnecessary mutilation of the patient in not a few instances. The removal of the injured eye, if accomplished early after the other becomes sympathetically affected, is quite effectual in saving the latter.

"Minor Mental Maladies" is the title of the next paper. It is by Dr. ANDREW MCFARLAND, and was read before the Association of American Institutions for the Insane. Though deficient in perspicuity, and with a surprising paucity of illustration, considering the fruitfulness of the field, the paper of Dr. McFarland is still replete with interest and instruction. Its value consists, however, mainly in its suggestive character; the author having rather touched than investigated the subjects embraced by his title. It is, we think, not improbable that many of the prominent peculiarities, the eccentricities, the minor vices of character, which distinguish certain individuals from those by whom they are surrounded, will be found, upon more minute investigation, to proceed from partial insanity of mind, and may be styled, not improperly, minor mental maladies. So far, however, as vices of character and disposition are clearly traceable to defective education, mental and moral—to evil example and associations—to the undue development or activity, as the phrenologist would say, of certain of the mental organs at the expense of others, they can scarcely be styled, with strict propriety, mental maladies of even a minor character, nor can they in whom such vices of character and disposition occur be classed with the insane, properly speaking. The entire subject opened by Dr. McFarland in the paper before us is deserving of a more careful and intimate investigation than it has as yet received.

The report of the Committee on "Surgery," by Professor E. ANDREWS, of Chicago, is a highly instructive one, especially that portion of it which treats of *military surgery*. A portion of the committee being engaged in active service during the year embraced in the report, has enabled its author to present a series of conclusions derived from a large number of gunshot wounds in different parts of the body, based upon personal observation or upon information derived from reliable sources.

The entire number of gunshot wounds of which there were full and correct records was 734. Of this number 50 were of the head, namely, flesh wounds and contusions 30, fractures of the face 9, of the cranium 5.

Of the 30 flesh wounds, 16 recovered, 4 died, and 10 remained uncertain. Of the 9 fractures of the face, 5 recovered, 1 died, and 3 remained doubtful. Bullet wounds of the bones of the face are liable to be followed by secondary hemorrhage. Of the 5 fractures of the cranium, 2 were from bullets penetrating the brain, and 3 from pieces of shell or oblique bullets. They all died; one was trephined, but without benefit. The general result of experience is that gunshot fractures of the cranium are fatal, and that trephining is seldom useful. A few unrecorded cases of recovery have come to the knowledge of the committee—these were all wounds of the anterior lobe of the brain, which would seem to sustain injury with less serious results than any other portion of the organ.

*Wounds of the Neck.*—These were ten in number, all flesh wounds: six recovered, and four remained doubtful. Wounds of the large bloodvessels of the neck, and fracture of cervical vertebrae, usually die at once upon the field.

There were 164 *wounds of the trunk*: of these, 36 penetrated the lungs, 10 the cavity of the abdomen; 31 were flesh or fracture wounds of the shoulder, and 87 were flesh wounds of various regions, or fracture of ribs, not penetrating any cavity. Of the 36 wounds of the lungs, 12 recovered, 18 died, and 6 were uncertain. Of the 10 penetrating wounds of the abdomen, 2 were from stabs, 8 from gunshots; the first two recovered. Of the gunshots, 6 died and 2 remained very doubtful. With very few exceptions, bullet wounds penetrating the abdominal cavity were fatal. Of the wounds of the shoulder, 20 recovered and 11 remained in doubt. All the superficial wounds of the trunk terminated favourably.

There were 69 cases of wounds of the arm—namely, 28 compound fractures of the humerus, 41 flesh wounds. All the latter recovered. Of the fractures, 21 recovered, 4 died, and 3 were in doubt. In 6 of the fractured cases, the shoulder-joint was resected; of these, 5 recovered and 1 died. In 6, amputation was performed at the shoulder-joint; of these 4 recovered and 2 died. In 8 cases, amputation of the arm was performed; of these, 7 recovered; the result of the other was unknown. In 8 cases no operation was resorted to, the fracture being treated with splints; of these 7 recovered and 1 died.

There were 14 cases of *wounds of the elbow*: namely, 4 flesh wounds, of which



2 recovered, and the result of 2 was unknown. 10 compound fractures of the joint, of which 7 recovered, 1 died, and 2 remained uncertain. In 4 of these cases, resection of the joint was performed, with 3 recoveries and one death. In 3, amputation of the arm was performed; of these cases 2 recovered, and 1 was undecided. In three cases of less severity, no operation was performed; all these recovered.

There were 43 *wounds of the forearm*: 27 flesh wounds, and 16 compound fractures. Of the flesh wounds, 22 recovered, and 5 were doubtful. Of the compound fractures, 10 recovered, and 6 remained doubtful. In 4 of the cases, amputation was performed, all of which recovered.

There were 77 *wounds of the hand*: of these, 38 were flesh wounds, of which 37 recovered, and one died. 25 were attended with fracture of the phalanges, of which 18 recovered, and in 7 the result was unknown. 9 were attended with fracture of the metacarpus, of which 4 recovered, and in 5 the result was unknown. 5 were attended with fracture of the wrist; of these 3 recovered and 2 were doubtful. 24 fingers were amputated, with a favourable result in 19; 5 were not heard from. One amputation was performed through the metacarpals—result unknown. One shot across the metacarpals was very unjustifiably treated by amputation of the forearm, four inches above the injury—the patient recovered.

There were 43 *wounds of the pelvic region*: namely, 40 flesh wounds and 3 attended with fracture. In none of the latter was any of the viscera implicated. Of the flesh wounds, 30 recovered, 3 died, and 7 were undecided. Among the fatal cases was one with injury of the bladder, and another attended with secondary hemorrhage and general exhaustion, from the bad air of an overcrowded boat. 2 of the cases attended with fracture recovered, and 1 died.

There were 109 *wounds of the thigh*: of these, 90 were flesh wounds, and 19 were attended with fracture of the femur. Of the 90 flesh wounds, 76 recovered, 3 died, and 11 were doubtful. Of the 19 fractures, 6 recovered, 12 died, and 1 was doubtful. In 5 of the fractured cases, amputation was performed at the upper third of the thigh, with 1 recovery and 4 deaths; 3 were amputated at the middle third, with 2 recoveries and 1 death; one was amputated at the lower third and recovered. 2 cases were treated by resection of the fractured portions in the continuity of the joint; both died. 9 cases were treated simply with splints, position, and such incisions as were necessary for the discharge of pus; 3 recovered, 6 died. 2 of the recoveries were in persons who had been shot in the cancellated tissue of the neck or trochanter, and 1 of these had lain twenty hours on the field in very raw and cold weather. The reason why shots through the cancellated tissue, at the superior fifth of the femur, are far less dangerous than those in the compact bone of the shaft, is because, in passing through a soft bony structure, the ball produces only a moderate amount of shattering, whereas the impact of a minie ball upon the brittle ivory of the shaft, splinters it for several inches, and scatters the fragments among all the surrounding tissues, producing very extensive disorganization. Such cases nearly all terminate fatally within the first five days, no matter what is the treatment adopted.

There were 26 *wounds of the knee*: 14 were flesh wounds, and 12 attended with compound fracture. Of the first, 12 recovered, and 2 remained doubtful. Of the fracture cases, 5 recovered, 4 died, and 3 remained doubtful: 1 case was treated by resection of the joint, and recovered; in 1 no operation was performed, and death ensued.

There were 79 *wounds of the leg*: 56 flesh wounds and 23 with fracture. Of the flesh wounds, 51 recovered, 1 died, and 4 were undecided. Of the fractured cases, 14 recovered, 7 died, and 2 were unknown. In 12 amputation of the leg was performed with 11 recoveries and 1 death; 1 was treated by amputation of the lower third of the thigh, and recovered; in one case a portion of bone was resected, which also recovered; 8 were treated by splints alone; of these, 2 recovered, 4 died, and 2 remained doubtful.

There were 50 *wounds of the foot*: namely, 31 flesh wounds, and 4 attended with fracture of the phalanges, which recovered; 6 with fracture of the metatarsus, of which 4 recovered, 1 died, and 1 was unknown; 9 with fracture of the tarsus, of which 7 recovered, 1 died, and 1 remained doubtful. Amputation

of the toes was performed in 4 cases—all recovered. One amputation through the tarsus was performed, and the patient recovered. In 4 cases the leg was amputated, with 3 recoveries and 1 death.

In respect to operations after wounds, we have the following statements:—

*Amputation at the shoulder joint* is only proper where an arm has been torn off, or otherwise so hopelessly disorganized as to render mortification of the limb inevitable. If the head of the humerus only is shattered, resection should be preferred. From the tables given in the report before us, amputations at the shoulder-joint had a mortality of 1 in 3, while resections of the joint showed a loss of only 1 in 6: being an advantage of 6 per cent. in favour of resection, besides the saving of a useful limb. Sabre cuts and bullet wounds, simply opening the shoulder-joint, without serious injury of the bones, require neither amputation nor resection. If, however, the head of the humerus is badly comminuted, an operation is absolutely required, as the mortality of cases treated simply by splints, is found to be over 60 per cent.

*Amputation of the arm* is called for only when there is no hope of the limb being saved. Even in bad fractures of the humerus, or shattered elbow, the operation is not warranted, if there is a good pulse at the wrist. Whenever the circulation continues in some measure below the injury, all loose fragments of bone should be removed, and the limb dressed as for other compound fractures. Of 11 cases of amputation referred to in the report before us, none died.

All cases of *amputation in the forearm and hand*, of which the results could be obtained, recovered. It should be borne in mind, however, that the forearm and hand recover from the most frightful looking wounds with surprising ease, and that every inch which can be preserved is of priceless value to the patient. Of a mangled hand, almost all the remaining portions may, and should generally be retained.

No case of *amputation at the hip-joint* is recorded in the report.

*Amputations of the thigh*, when secondary, are usually fatal, therefore the decision of the surgeon must be made up at once from the appearance of each case, and if amputation be decided on, it should be promptly executed. The records before us show 20 amputations of the thigh, of which 9 died, 10 recovered, and 1 remained doubtful, being a mortality of about 45 per cent. Resection was tried in 2 cases; both died within the fifth day. In 9 cases the treatment was by splints, with merely an incision to evacuate pus; of these, 2 recovered and 6 died.

Amputation should always be performed as far from the trunk as possible.

The following general conclusions in respect to wounds of the thigh are given in the report:—

"1st. A very large portion of the cases with badly comminuted femurs will die within five days, alike under all kinds of treatment. There is no perfect reaction."

"2d. Shots through the spongy tissue of the trochanter and neck of the femur are less fatal than those through the compact tissue of the joint. A large portion of them will recover with simple extension splints, and in some instances incisions to evacuate pus; whereas, amputations and military excisions may be said practically to be all fatal."

"3d. Amputation above the middle of the femur should only be resorted to in desperate circumstances, when the limb below is either torn off or so injured that there is little hope of its escaping mortification. If circulation and innervation are good below, a free incision should be made down to the comminuted bone, and the limb then dressed with a straight splint, and adhesive strap extension bands."

"4th. In all severe compound fractures of the lower half of the femur, and all gunshot fractures of the knee-joint, if amputation can be effected below the middle of the thigh, it should promptly be performed. By this, about 75 per cent. of the patients may be saved, but if attempts are made to save the limb, almost every case will prove fatal."

*Amputation of the leg* may be practised whenever it is impossible to save a useful limb. While, however, the circulation in the foot continues, an attempt

should be made to preserve the limb. The danger of postponing or omitting amputation is not great even though the foot should mortify.

*Resection of the elbow*, in respect to risk to the patient, is about upon a par with amputation; but as the first preserves and the latter takes away the hand, the choice, in every case which admits of it, is clearly in favour of resection.

*Resection of the knee-joint*.—In the report before us it is remarked that more extensive statistics are needed to settle the true value of the operation. The advice given, based upon the observations of the committee and a careful review of the opinions of other surgeons, is that whenever good air and perfect rest can be secured to the patient resection of the knee is to be preferred, but under no other circumstances. Resections of the hand, leg, and foot are to be governed by the same rules in military as in civil practice.

The present volume of *Transactions* closes with a highly interesting and practical paper, by Dr. David Prince, of Jacksonville, on *delayed union of fractures*, which was previously published in the number of this journal for Oct. 1863, p. 313.

2. The *Transactions* of the eighteenth annual session of the *Ohio State Medical Society* opens with the valedictory address of the retiring president, Dr. J. W. Russell. The subject of the address is "the cultivation, advancement, and elevation of the medical profession." The means for effecting these important objects are passed successively in review, and commented upon with great ability.

The first of the scientific papers is one on the "Employment of Electricity in Midwifery," by Dr. D. S. GANS, of Cincinnati.

The cases in which electricity may be employed with advantage within the domain of obstetrics are, according to the investigations of Dr. Gans, and the collation of all the observations in respect to it on record: First, when the production of premature labour is deemed advisable; principally where a kind of preparatory period has been made, by the repeated employment of the warm douche, or by the use of the colpeurysis. Second, in all cases of hemorrhage before and after delivery, and in retarded labour from atony of the uterus. Third, as one of the most powerful and certain means of resuscitating in cases of asphyxia neonatorum. Fourth, as a cautery for various operations on the uterus, as the extirpation of uterine polypus, amputation of the portio-vaginalis, and the exciting to healthy action certain ulcers of the os and neck of the womb.

For a description of the proper mode of applying electricity in such cases we refer to the paper before us.

The next paper is the report of a committee on "New Remedies," by Dr. E. B. STEVENS, of Cincinnati.

The remedies noticed in the report are, *opium* and *belladonna* in their property of mutually antagonizing each other when taken into the human system; *inhalations of medicated vapours* in certain affections of the respiratory apparatus; the *hypophosphates*; the *compound syrup of phosphates*, or chemical food; *oxygen*, in certain depressed conditions of the system; *preparations of iron*, especially in the treatment of erysipelas; *bromine*, as an antiseptic, and a prophylactic of erysipelas, diphtheria, pyemia, and hospital gangrene, as well as a most important remedy in their control when they have set in, used both locally and constitutionally.

Dr. Stevens makes the following very correct remarks in an early part of his report: "Whenever we arrive at a more correct appreciation of the exact qualities of an *old* remedy; whenever we learn to apply it for the relief of symptoms hitherto overlooked; whenever we discover new combinations of remedies, or a mode of administering them which increases their efficiency as curative agents—in all these cases we have *new remedies* presented to us quite as truly, for all practical purposes, as though we had absolutely discovered a new drug."

The next report is that on the "Number and Condition of the Medical Societies of Ohio," by Dr. R. WALLACE, of Lewisburg.

The report presents no very flattering exposition of the condition of these associations, which are so necessary for the promotion of medical knowledge, medical union, medical ethics, and for the defence of medical practitioners in the maintenance of their just rights. As is the case nearer home, there are in Ohio

many physicians who, either from a perfect indifference to everything beyond what they esteem their own individual interests, or some other equally selfish pretext, keep themselves aloof from all professional organizations; in consequence the medical society has generally neither the support nor countenance of the medical men of the several counties of the State. This condition of things should not be. The power of associated influence and co-operative action in the attainment and spread of useful knowledge and in the bringing of such knowledge into practical usefulness, is beginning to attract public attention everywhere, and we may hope that the time is near at hand when the entire body of the medical men of the United States will feel themselves in duty bound to aid effectually in perfecting and sustaining the professional organizations of our several counties and States, and of the entire Union.

The next paper is an account of the arrest and cure of a case of "Mollities Ossium" by the use of phosphate of lime and phosphoric acid. Reported by Dr. N. DALTON, of Logan.

The patient was a female 17 years of age, who had been confined to her bed for upwards of eight months, with pains in her bones and deformity of the osseous tissues of the whole of the right side, with entire absence of osseous matter in the left lower extremity and great deficiency of it in that of the left side. There was irritability of stomach—rejecting nearly all other than acid food; while all acids, the patient complained, caused her exceeding languor. The ejections from the stomach were decidedly acidulous; in the urine there was a large quantity of a grayish deposit, equal to one-third the volume of the urine passed, especially in the morning. By analysis the urine was found to be full five and a half grains to every ounce. The patient was placed under the use of the phosphate of lime, which was carried to the extent of twenty grains for a dose at each of her meals; and at the same time from a half grain to a grain of phosphoric acid between breakfast and dinner, and between dinner and supper.

After this treatment had been persisted in for about six months, the patient was able to walk about her room. The deformity of the bones was relieved in only a slight degree. The patient acquired finally the ability to move about and endure considerable bodily labour. The reasoning of Dr. Dalton in support of the adaptedness of the treatment described, in cases of mollities ossium, scrofula, chronic ulceration in strumous subjects, rickets, etc., is well deserving of an attentive perusal.

The paper next in order is entitled "Remarks on certain Adipose Tumours." It is by Dr. ALEX. MCBRIDE, of Berea. The doctor, as medical examiner of recruits, met in some seven or eight instances with a tumour, situated on the linea alba, about equidistant between the umbilicus and xyphoid cartilage, of a globular shape, soft, doughy, and about the size of a nutmeg or small walnut. They were at first mistaken for ventral omental hernia. They were irreducible, and in all cases caused the patient unpleasant sensations. In the hospital at Camp Chase in the month of March, 1863, a soldier was affected with one of these tumours. He was attacked with disease, of which he died. By a post-mortem examination it was ascertained that he had died of peritonitis with effusion of serum and plastic lymph. Beneath the adipose tissue of the anterior abdominal parietes, there existed a smooth globular tumour, about the size of a nutmeg, enveloped in delicate cellular membrane, and easily separable from the adipose tissue. It was attached by a pedicle, about two lines in diameter, which was found to pass through a circular orifice in the median line of the linea alba, and then to lose itself among the adipose substances between the linea alba and peritoneum. It did not pass through the peritoneum, nor had it any connection with it. Upon laying open the tumour it was found to be composed of the same adipose tissue with which it was in connection, though a trifle less fatty in appearance. Here, then, Dr. McBride remarks, was a protrusion of supra-peritoneal adipose tissue through the linea alba, carrying with it a sac of cellular tissue. There is no reason to suppose the tumour had any connection with the disease of which the patient died. From the examination in this case Dr. McBride infers that all the tumours he saw before and afterwards, occupying the same locality and presenting similar appearances, were, in fact,

adipose hernial tumours of the linea alba. By others similar tumours, similarly located, had been observed. It is supposed that in every thousand invalided soldiers one case of this form of tumour will be found. Surgeon W. L. Peck found three of them, while examining over one thousand recruits. Dr. Hamilton reports three cases in fourteen hundred.

Dr. F. C.

#### ART. XVIII.—*Reports of American Hospitals for the Insane:—*

1. *Of the New York State Lunatic Asylum, for the years 1861 and 1862.*
2. *Of the Central Ohio Lunatic Asylum, for the fiscal year 1861–62.*
3. *Of the Southern Ohio Lunatic Asylum, for the fiscal year 1861–62.*
4. *Of the Vermont Asylum for the Insane, for the fiscal year 1862–63.*
5. *Of the Maine Insane Hospital, for the year 1863.*
6. *Of the State Hospital at Worcester, Mass., for the fiscal year 1861–62.*
7. *Of the State Hospital at Northampton, Mass., for the fiscal year 1861–62.*
8. *Of the Maine Hospital, for the year 1862.*

1. In 1861, as appears by its report for that year, the *New York State Lunatic Asylum*, at Utica, was relieved of a burthen which had long been borne, and which still weighs oppressively upon many of the other State hospitals for the insane. All the male convicts who had been committed to its care were transferred to the hospital at Auburn, which was expressly intended for that class of the insane.

In this movement "the State," remarks Dr. Gray, "has inaugurated a progressive step," and we cordially unite with the doctor in the hope that "the precedent now established will become a settled policy, and finally embrace the exclusion of all classes of 'criminal insane' from the ordinary asylums, and secure their treatment in separate institutions, or in wards adjoining and connected with the hospital department of the prisons, and under the care of the prison or other competent physicians."

	Men.	Women.	Total.
Patients in hospital November 30, 1860 . . . . .	282	235	517
Admitted in course of the year . . . . .	154	141	295
Whole number . . . . .	436	376	812
Discharged, including deaths . . . . .	157	123	280
Remaining November 30, 1861 . . . . .	279	253	532
Of those discharged, there were cured . . . . .	48	35	83
Died . . . . .	21	10	31

Died of general paralysis, 10; exhaustion from insanity, 8; tubercular consumption, 4; erysipelas, 3; syncope, 2; paralysis, pneumonia, epilepsy, and meningitis, 1 each.

In the ten cases of mortality from the paralysis peculiar to the insane, the ages of the patients "varied from 28 to 57 years; and the duration of the disease from ten months to three and a half years. The disease was ushered in by convulsions in two cases. In nine it was associated with dementia, and in one with mania. Four were persons of correct and six of intemperate habits."

Of the admissions, "forty-six were strongly marked suicidal cases, most of whom had attempted self-destruction before admission; fourteen others were homicidal, and four suicidal and homicidal.

"One man and two women received were, after observation, found not to be insane, but cases of confirmed inebriety.

"Two of these cases were sent by the public authorities, and one by friends, and all under medical certificates of insanity."

In relation to the reluctance to sending insane persons to the hospitals, the report says:—

"In some places and among some people this reluctance arises from a false impression of the character and operations of such institutions, originating in

many physicians who, either from a perfect indifference to everything beyond what they esteem their own individual interests, or some other equally selfish pretext, keep themselves aloof from all professional organizations; in consequence the medical society has generally neither the support nor countenance of the medical men of the several counties of the State. This condition of things should not be. The power of associated influence and co-operative action in the attainment and spread of useful knowledge and in the bringing of such knowledge into practical usefulness, is beginning to attract public attention everywhere, and we may hope that the time is near at hand when the entire body of the medical men of the United States will feel themselves in duty bound to aid effectually in perfecting and sustaining the professional organizations of our several counties and States, and of the entire Union.

The next paper is an account of the arrest and cure of a case of "Mollities Ossium" by the use of phosphate of lime and phosphoric acid. Reported by Dr. N. DALTON, of Logan.

The patient was a female 17 years of age, who had been confined to her bed for upwards of eight months, with pains in her bones and deformity of the osseous tissues of the whole of the right side, with entire absence of osseous matter in the left lower extremity and great deficiency of it in that of the left side. There was irritability of stomach—rejecting nearly all other than acid food; while all acids, the patient complained, caused her exceeding languor. The ejections from the stomach were decidedly acidulous; in the urine there was a large quantity of a grayish deposit, equal to one-third the volume of the urine passed, especially in the morning. By analysis the urine was found to be full five and a half grains to every ounce. The patient was placed under the use of the phosphate of lime, which was carried to the extent of twenty grains for a dose at each of her meals; and at the same time from a half grain to a grain of phosphoric acid between breakfast and dinner, and between dinner and supper.

After this treatment had been persisted in for about six months, the patient was able to walk about her room. The deformity of the bones was relieved in only a slight degree. The patient acquired finally the ability to move about and endure considerable bodily labour. The reasoning of Dr. Dalton in support of the adaptedness of the treatment described, in cases of mollities ossium, scrofula, chronic ulceration in strumous subjects, rickets, etc., is well deserving of an attentive perusal.

The paper next in order is entitled "Remarks on certain Adipose Tumours." It is by Dr. ALEX. MCBRIDE, of Berea. The doctor, as medical examiner of recruits, met in some seven or eight instances with a tumour, situated on the linea alba, about equidistant between the umbilicus and xyphoid cartilage, of a globular shape, soft, doughy, and about the size of a nutmeg or small walnut. They were at first mistaken for ventral omental hernia. They were irreducible, and in all cases caused the patient unpleasant sensations. In the hospital at Camp Chase in the month of March, 1863, a soldier was affected with one of these tumours. He was attacked with disease, of which he died. By a post-mortem examination it was ascertained that he had died of peritonitis with effusion of serum and plastic lymph. Beneath the adipose tissue of the anterior abdominal parietes, there existed a smooth globular tumour, about the size of a nutmeg, enveloped in delicate cellular membrane, and easily separable from the adipose tissue. It was attached by a pedicle, about two lines in diameter, which was found to pass through a circular orifice in the median line of the linea alba, and then to lose itself among the adipose substances between the linea alba and peritoneum. It did not pass through the peritoneum, nor had it any connection with it. Upon laying open the tumour it was found to be composed of the same adipose tissue with which it was in connection, though a trifle less fatty in appearance. Here, then, Dr. McBride remarks, was a protrusion of supra-peritoneal adipose tissue through the linea alba, carrying with it a sac of cellular tissue. There is no reason to suppose the tumour had any connection with the disease of which the patient died. From the examination in this case Dr. McBride infers that all the tumours he saw before and afterwards, occupying the same locality and presenting similar appearances, were, in fact,

adipose hernial tumours of the linea alba. By others similar tumours, similarly located, had been observed. It is supposed that in every thousand invalided soldiers one case of this form of tumour will be found. Surgeon W. L. Peck found three of them, while examining over one thousand recruits. Dr. Hamilton reports three cases in fourteen hundred. D. F. C.

#### ART. XVIII.—*Reports of American Hospitals for the Insane:—*

1. *Of the New York State Lunatic Asylum, for the years 1861 and 1862.*
2. *Of the Central Ohio Lunatic Asylum, for the fiscal year 1861–62.*
3. *Of the Southern Ohio Lunatic Asylum, for the fiscal year 1861–62.*
4. *Of the Vermont Asylum for the Insane, for the fiscal year 1862–63.*
5. *Of the Maine Insane Hospital, for the year 1863.*
6. *Of the State Hospital at Worcester, Mass., for the fiscal year 1861–62.*
7. *Of the State Hospital at Northampton, Mass., for the fiscal year 1861–62.*
8. *Of the Maine Hospital, for the year 1862.*

1. In 1861, as appears by its report for that year, the New York State Lunatic Asylum, at Utica, was relieved of a burthen which had long been borne, and which still weighs oppressively upon many of the other State hospitals for the insane. All the male convicts who had been committed to its care were transferred to the hospital at Auburn, which was expressly intended for that class of the insane.

In this movement "the State," remarks Dr. Gray, "has inaugurated a progressive step," and we cordially unite with the doctor in the hope that "the precedent now established will become a settled policy, and finally embrace the exclusion of all classes of 'criminal insane' from the ordinary asylums, and secure their treatment in separate institutions, or in wards adjoining and connected with the hospital department of the prisons, and under the care of the prison or other competent physicians."

	Men.	Women.	Total.
Patients in hospital November 30, 1860 . . . . .	282	235	517
Admitted in course of the year . . . . .	154	141	295
Whole number . . . . .	436	376	812
Discharged, including deaths . . . . .	157	123	280
Remaining November 30, 1861 . . . . .	279	253	532
Of those discharged, there were cured . . . . .	48	35	83
Died . . . . .	21	10	31

Died of general paralysis, 10; exhaustion from insanity, 8; tubercular consumption, 4; erysipelas, 3; syncope, 2; paralysis, pneumonia, epilepsy, and meningitis, 1 each.

In the ten cases of mortality from the paralysis peculiar to the insane, the ages of the patients "varied from 28 to 57 years; and the duration of the disease from ten months to three and a half years. The disease was ushered in by convulsions in two cases. In nine it was associated with dementia, and in one with mania. Four were persons of correct and six of intemperate habits."

Of the admissions, "forty-six were strongly marked suicidal cases, most of whom had attempted self-destruction before admission; fourteen others were homicidal, and four suicidal and homicidal.

"One man and two women received were, after observation, found not to be insane, but cases of confirmed inebriety.

"Two of these cases were sent by the public authorities, and one by friends, and all under medical certificates of insanity."

In relation to the reluctance to sending insane persons to the hospitals, the report says:—

"In some places and among some people this reluctance arises from a false impression of the character and operations of such institutions, originating in

stories of uncured patients, discharged employees, or general gossip. Others augur unfavourably in regard to asylums from the means resorted to by themselves at home to restrain and care for their friends.

"Thus those who bring patients in chains and ropes, and who have used harsh measures, are very apt to enjoin kind care and be suspicious of the institution. In the main, however, it is because people naturally shrink from the idea of such separation of those who are dear to them, from home and its associations and comforts, especially in the time of affliction. They feel that in doing so they are consigning them to the hands of strangers, and knowing little of insanity they comprehend neither the danger of delay nor the value of timely treatment. They have been accustomed to think of an asylum as the last dreaded resort, instead of the safest and surest curative means to be adopted, and in the hour of sorrow are ill prepared to seek evidence or modify their opinions on the subject."

The following articles were contributed to the soldiers of our army, the officers and employees furnishing the money necessary for the purchase, and the patients making such as were not already made: Dressing-gowns, 20; rolls of bandage, 40; towels, 500; silk handkerchiefs, 8; shirts, 2; pin-cushions, 142; pairs of socks, 42; currant jelly, 3 gallons; raspberry vinegar, 84 bottles; revolvers, 3; military belts, 4; knit woollen shirts, 96; woollen stockings, 96 pairs; blankets, 1 pair.

We proceed to the report for 1862:—

	Men.	Women.	Total.
Patients in hospital November 30, 1861 . . . . .	279	253	532
Admitted in course of the year . . . . .	165	122	287
Whole number . . . . .	444	375	819
Discharged, including deaths . . . . .	182	123	305
Remaining November 30, 1862 . . . . .	262	252	514
Of those discharged, there were cured . . . . .	53	53	106
Died . . . . .	16	14	30

Died of phthisis pulmonalis, 8; general paralysis, 4; exhaustion from mental disease, 5; epilepsy, 3; paralysis, 2; pneumonia, cerebro-spinal meningitis, apoplexy, suicide, meningitis, gastritis with peritonitis, 1 each; unascertained, 2. In the two cases last mentioned the symptoms were obscure, and there was no post-mortem examination.

"Thirty-three of the whole number admitted had previously been inmates of the asylum. Of these, twenty-nine were received for the second, three for the third, and one for the sixth time. Nineteen of the thirty-three had, at various periods, been discharged recovered, and fourteen improved or unimproved. These latter were again placed under treatment on account of their becoming unmanageable at home, or dangerous to the public.

"Forty-five of those admitted (twenty-one males and twenty-four females) were suicidal, eighteen of whom had attempted self-destruction by various means. Twenty were homicidal, ten men and ten women, four of whom attempted and one committed homicide.

"A number were brought to the asylum in irons, some badly bruised; one with fracture of the clavicle, one with fracture of the ribs and sternum, and one with fracture of the arm. One woman gave birth to a child, at full period, a few days after her admission, although the officer bringing her to the asylum was disposed to consider her declaration as to her condition one of her delusions. The child was well developed and healthy, and, after a time, was sent home, and the mother soon recovered from the acute attack of insanity.

"The injuries above mentioned were not chargeable to intentional violence, but to the ignorance and want of experience of those having charge of the insane persons before their admission to the asylum. Those injured were all cases of acute maniacal disease, and the patients made no complaint of pain or injuries, and the facts were not suspected until revealed by our examination."

Of the 287 patients admitted, the origin of the disease was attributed to the war in but one alone.

Dr. Gray endeavours to account for the apparent exemption of our people



from that increase of mental disorders which, both from history and philosophy, we had been taught to believe must be one of the inevitable consequences of a state of warfare such as that in which we are placed. We have already, in a notice of another report, which, in the arrangement of this article, is placed on a subsequent page, made all the extracts upon this subject for which we have room.

Patients admitted from January 16, 1843, to December 1, 1862 .	6629
Discharged, cured . . . . .	2634
Died . . . . .	774
Not insane . . . . .	52

These two reports are less elaborate and consequently contain less matter of professional interest than most of those which had previously come from the pen of Dr. Gray.

2. The general statistics of the *Central Ohio Lunatic Asylum*, for the year ending November 1, 1862, are as follows:—

	Men.	Women.	Total.
Patients in hospital November 1, 1861 . .	132	120	252
Admitted in course of the year . . . .	77	80	157
Whole number . . . . .	209	200	409
Discharged, including deaths . . . .	69	80	149
Remaining November 1, 1862 . . . .	140	120	260
Of those discharged, there were cured . .	44	46	90
Died . . . . .	4	9	13

Died of general paralysis, 3; consumption, 3; apoplexy, pneumonia, inanition, fever, variola, suicide, and typhomania, 1 each.

The poison of variola was introduced into the hospital through some unknown channel, though it was supposed to have been by some visitor from an infected camp, and fifteen patients took the disease. In only one case did it prove fatal.

Nine insane soldiers were among the patients admitted. In regard to this class of patients Dr. Wills makes the following remarks:—

"The patients derived thus far directly and indirectly from the military ranks are in most instances those who have had previous attacks. This being the case in so great a proportion of instances, I would consider it a good rule to exempt and reject from military duty in time of war, all persons who have been recently insane. Independent of the excitements found in military life, the irregular mode of living, frequent loss of sleep, occasional deprivation of food, excessive fatigues, and exposures to wet and cold, are almost sure to induce insanity in those that are predisposed, and to cause relapses in those recently recovered."

We make the subjoined extract relative to medical treatment, with the preliminary remark that, in many cases of recent mania, we would not administer opiates until the secretions into the alimentary canal have been stimulated by appropriate medication:—

"If sleep be absent (and what case of mania ever occurred without its being deficient?), an adequate dose of a well chosen soporific is more likely to procure it than any other means. If high nervous excitement exists, stimulants and anodynes may gradually allay it when all other means would fail. If secretions are deficient or perverted, correctives should be used. If digestion be poor, stomachics, tonics, and appetizers are wanted. There are very few cases brought to an asylum that do not, in their early stages, need some medication, and we greatly fear that in many cases they are permitted to pass into a chronic and incurable condition for the want of it."

The extent to which patients are employed in the hospital at Columbus, may be inferred from the following paragraph:—

"For several years we have manufactured all the boots, shoes, and slippers required to be furnished by the State, and have done all the repairing in that line. We have made all the clothing required to be furnished for both males

and females, and have done all the repairing required for either sex. In the carpenter, joiner, and cabinet departments, besides extensive repairs and improvements all about the premises, many articles of furniture have been made, and a large number repaired."

Dr. Willis returned from a visit to some of the European hospitals but a short time before the date of this report. In respect to the results of his journey, he says:—

"Although we found many things suggestive, and made many observations, we trust, to our profit in the specialty, yet we returned well satisfied with the general character of our American asylums. There are very few features in which they are behind in the scale of excellence, and certainly many in which they excel."

In regard to the use of mechanical restraints he remarks: "It is said that in England they are entirely abolished, but though this is not true, it is very nearly so," and in this connection asserts that in the hospital at Columbus, "during the last three years, we have not had any muff, camisole, or similar device in use, more than, on an average, in one case for one-fourth to one-half of the time. This would be *one-fifth to one-tenth of one per cent. only.*" He acknowledges that, in Great Britain especially, the patients are employed in manual labour "to a surprising degree in some of the asylums;" and closes his remarks as follows:—

"On the whole, though we found in several countries many incentives to improvement in the management of the insane, yet we witnessed, in the course of our tour, more listless, lolling inactivity, and more physical restraints, as confinement of hands and limbs, strapping to chairs, benches, bedsteads, and walls, not omitting certain clanking sounds, than we expect or believe possible to witness again without recrossing the Atlantic. Even at Gheel, in Belgium, where, theoretically, there is the largest amount of personal liberty, I found a high degree of what I term physical restraint."

3. In April, 1862, Richard Gundry, M.D., was elected to the office of Superintendent of the *Southern Ohio Lunatic Asylum*. Dr. Gundry had acted during the next preceding five years as assistant physician in the same hospital.

	Men.	Women.	Total.
Patients in hospital, Nov. 1st, 1861	78	81	159
Admitted in course of the year	44	48	92
Whole number	122	129	251
Discharged, including deaths	46	44	90
Remaining, Nov. 1st, 1862	76	85	161
Of those discharged, there were cured	28	33	61
Died	8	3	11

Died of apoplexy, 2; mania, 2; consumption, 2; paralysis, epilepsy, dysentery, pneumonia, and phlegmonous erysipelas, 1 each.

In no report have we seen the apparent influence of our civil war, as a cause of insanity, more accurately or more briefly stated than in the one now under notice. After mentioning some of the most unfavourable consequences of the struggle, Dr. G. says:—

"Yet with these and other unquestioned evils following in the train of this gigantic war, added to the ordinary sources of mental disquietude, it is satisfactory to note, that the tendency to insanity has not been materially increased. That the events of the war have given colour and direction to the delusions of many already unsound in mind, or on the point of becoming so—that to the war-excitement must be charged the insanity of some so predisposed to disease that any pressure upon them in ordinary times would have precipitated an attack, may be readily admitted, so the grief at the loss of friends who have died in the hospital or on the field, has undoubtedly occasioned some attacks; yet it will hold good, as a general statement, that the proportion of those becoming insane, to the general community, has not been materially affected during the past year. If, therefore, some accessions to the numbers of the insane can be traced to causes arising out of the war, it must also be true that some other causes have been rendered inoperative in equal proportion. The evils alluded

to cannot have been altogether without some compensating good, which should not pass unnoticed. At no period has personal benevolence been so general and so heartfelt. At no time have all selfish cares and anxieties given place to thoughtfulness for the good of others. To save for our suffering soldiers has induced greater habits of care and providence; to aid the sick and wounded has occupied many hours of generous labour, and all minor personal evils have meanwhile been disregarded. The interest thus manifested in relieving the wants of those brave men who have gone to do battle for their country, has (as it were) lifted up many beyond the influence of the ordinary causes of mental affliction. So far, therefore, as the existence of the war has taught those at home to think less anxiously about their own immediate cares and trials and interests, and to feel more earnestly for others—so far as it has given rise to a genuine disinterestedness and benevolence (whatever enormous evils have resulted in other ways)—so far it has tended to lessen rather than increase the liability to mental disease."

We cannot leave this subject without the remark that there are reasons to believe that the conclusion that insanity has not increased since the commencement of the war—an opinion generally prevalent among physicians and laymen—has been reached without sufficient knowledge of the conditions and facts bearing upon the question. Hence, in introducing the foregoing extract, we have prefixed to the clause "influence of our civil war," the qualifying word "apparent."

It is doubtless true that pecuniary inability resulting from the war has kept many insane persons at home who would otherwise have been sent to the hospitals. It is not unlikely that the numbers sent to almshouses, or other county and town receptacles, have increased rather than diminished. Again, the very important fact is probably not generally known that the number of insane persons admitted into the Government Hospital for the Insane, near Washington, an institution which has been in operation since January, 1855, has more than quadrupled since the war began.

In the fiscal year ending June 30th, 1860, the number admitted was 92, while in that which ended with the 30th of June, 1863, the number was 357; and in the seven months included between the date last mentioned and the 1st of February, 1864, it was 269—an average monthly rate of 38, or more than five times the average rate of 1860.

It is said that the president of the Sanitary Commission has publicly asserted that there has been no insanity in the army, since the beginning of the war. This assertion, of course, was the offspring of misinformation. The extent of its truth may be inferred from the facts exhibited in the following table of admissions of persons from the two branches of the national service into the Government Hospital for the Insane:—

	From Army.	From Navy.	Total.
Admitted in course of year ending June 30, 1860	26	8	34
Admitted in course of year ending June 30, 1861	24	6	30
Admitted in course of year ending June 30, 1862	139	15	154
Admitted in course of year ending June 30, 1863	297	12	309
Admitted in 7 months, from July 1st, 1863 to February 1st, 1864	227	14	241

Thus it appears that, in less than three years after the commencement of the war, the annual admissions from the army had increased more than eleven hundred per cent.; and, up to the present time, taking the seven months above mentioned as the criterion for the year, the increase has been about fifteen hundred per cent.

The first call for volunteer troops was in April, 1861; the first admission of an insane soldier of the volunteers was on the 5th of May, 1861. In June of the same year there were none, but in July there were three; in August, four; in September, six; in October, six; in November, five; and in December, eight. As early as February, 1861, the monthly number of insane received from the volunteer troops were fourteen, or half as many as the number of days. In the

seven months next preceding the 1st of February, the average monthly number was 304; i. e., 21½ volunteers were admitted in 215 days.

But even these statistics do not show the full extent to which mental disorders prevail in the Federal army. A considerable number of insane soldiers have been received into other hospitals than the one above mentioned, and there is good reason for the belief that many have never been taken to any curative institution.

In the discussion of the alleged causes of insanity, we meet with the following paragraph which contains some apparently original views:—

"From this, as from all other statistical records upon the subject, however imperfect, we glean one fact: that in a large proportion of cases, the health had been impaired shortly before or at the time when insanity was first observed."

The subject of hereditary transmission of mental disorders is ably handled, but we have room for the author's conclusions alone:—

"1. Insanity is transmitted with general identity in form of disease, general course of phenomena and age of accession.

"2. The inherited disease may be so intensified in succeeding generations that its access is earlier, its symptoms are more grave and the tendency to recover lessened. Or if recovery takes place, a recurrence of the attack is more imminent.

"3. Insanity may be the result in one generation of any one disease of a nervous type in a former generation. But this transformation does not extend to diseases of another type.

"4. The peculiarities of a highly nervous temperament may in a succeeding generation be so exaggerated as to become symptoms of mental disease. So also may uncontrolled propensities and instincts engender like disease in the posterity."

The extract given below describes, according to our view of the subject, the *true* method of action in all cases of insanity. We have always believed, what we now very well know, that there are many insane persons who can be as well treated at their homes as in the hospitals: and one of the principal reasons that have induced us to urge the importance of a more general study of the disease, is, that physicians in general practice may acquire a more discriminative power in regard to the question of home treatment or hospital treatment.

"After a careful discrimination between those cases which can be judiciously treated in their own homes, and those which require removal from all old associations, from the familiar faces of friends and the endearments of home, all perverted by their diseased judgment, into sources of irritation, and having arrived at the conclusion that hospital treatment is requisite, it must then be borne in mind that 'to be well done it must be done quickly.' What is true of all diseases, to some extent, is especially true of unsound mental manifestations, that the earlier they are detected and brought under appropriate treatment, the chances of a successful issue are incalculably increased. On the other hand, delay adds, in ever-increasing ratio, to the prolongation of the disease, and the probability that it shall never disappear."

We have no personal acquaintance with Dr. Gundry, but judging from this, his first report, we are disposed to congratulate the inmates of the Dayton Hospital, as well as the people of Ohio, upon his accession to his present office.

4. We have to add another conflagration to the somewhat copious chapter of accidents of that kind already furnished by the brief history of hospitals for the insane in America.

On the 21st of December, 1862, the *Vermont Asylum* was discovered to be on fire "in the room directly over the furnace, in the male wing, immediately adjoining the centre building." The wind being high, the fire extended rapidly, and notwithstanding the exertions of the fire companies, was not subdued until it had destroyed the main or central building, and the whole of the wing occupied by men. The patients were all safely removed, but the furniture was mostly consumed.

Measures for reconstruction were immediately taken, and at the date of the

report before us, it was thought that the new edifice would be completed in the course of the year 1863.

	Men.	Women.	Total.
Patients in hospital, August 1, 1862 . . . . .	232	231	463
Admitted in course of the year . . . . .	47	51	98
Whole number . . . . .	279	282	561
Discharged, including deaths, . . . . .	71	48	119
Remaining, August 1, 1863, . . . . .	208	234	442
Of those discharged, there were cured . . . . .			41
Died . . . . .			38

"In noticing the causes of insanity," remarks Dr. Rockwell, "we have failed to see as many cases produced by the progress and results of the war as might be anticipated. The fears, the anxieties and suspense of those who have had some dear relative in their country's service; the affliction and grief of those whose affectionate objects have died on the battle-field, or in the hospital, not to mention the fears of those who suffered intensely lest they should be drafted to sustain and defend their country and its liberties, all have had their influence, if not in producing, at least in giving a form to the insanity of the time. On the other hand, the general, if not the universal, desire to lessen the hardships of the soldier's life, and to promote his comfort and welfare, while in his country's service, has called forth that generous labour, and awakened that disinterested benevolence, and diverted the mind from personal trials and afflictions, the tendency of which is favourable to the preservation of mental soundness."

5. "It is a fact somewhat significant," writes Dr. Harlow, in his report, for 1863, of the *Maine Insane Hospital*, "that the number of patients admitted the past two years has been less than that of any corresponding period within the last ten years, which may be owing, in part, to the new and unusual occupation which has so thoroughly possessed the American mind since 1861. The awakening, by the great rebellion, of that wholesome principle in man—love of country which was slumbering in the heart, has seemed to check, for a time, the onward flow of insanity."

	Men.	Women.	Total.
Patients in hospital December 1, 1862 . . . . .	129	129	258
Admitted in course of the year . . . . .	66	52	118
Whole number . . . . .	195	181	376
Discharged, including deaths . . . . .	67	44	111
Remaining, December 1, 1863 . . . . .	128	137	265
Discharged cured . . . . .	24	28	52
Died . . . . .	18	6	24

Died with consumption, 6; general paralysis, 3; exhaustive mania, 2; senile gangrene, 2; congestion of brain, disease of heart, enteritis, inflammatory sore throat, erysipelas, pleurisy, and old age with chronic insanity, 1 each.

Ill health is mentioned as the most prolific of the causes of mental disorder among the patients received in the course of the year. "Our own observation," remarks Dr. Harlow, "has long since convinced us that if some means could be devised by which the tone of physical health could be elevated, the wards of our lunatic asylums (query—hospitals for the insane?) would soon become comparatively vacant, and our labour in this specialty lightened in no small degree. It must be apparent to all, that any one of the many moral causes of insanity falling upon a constitution deprived by physical degeneration or otherwise of one-half or three-fourths of its vital power, must act with proportionate force, and eventually result in the overthrow of the person attacked."

6. Dr. Bemis, near the beginning of his report of the *State Lunatic Hospital*, at Worcester, Mass., for the year terminating with the close of September, 1862, says:—

"Nothing occurred to mar the general good order and comfort of the house until late in the year, when a large number of our male attendants enlisted in the service of their country, making it necessary to employ an equally large

number of men, and strange hands in their places. This has been the cause of considerable uneasiness and excitement in the male wards, and it will probably require several months of hard labour to bring back the usual comfortable state of things."

	Men.	Women.	Total.
Patients in hospital October 1, 1861 . . . . .	184	195	379
Admitted in course of the year . . . . .	108	113	221
Whole number . . . . .	292	308	600
Discharged, including deaths . . . . .	92	112	204
Remaining September 30, 1862 . . . . .	200	196	396
Of those discharged there were cured . . . . .	58	66	124
Died . . . . .	11	23	34

Died of consumption, 10; typho-mania, 5; palsy, 6; old age, 5; marasmus, 3; epilepsy, 2; exhaustion, 2; suicide, 1; congestion of the brain, 1.

Each of the five patients who died of old age was over 70 years of age, and three of them over 80. They were all men, and one of them had been in the hospital nearly thirty years.

It appears that an earnest attempt has been made at this hospital to develop the industrial capacities of the patients; and in this report we find, for the first time in any American document of its kind, a detailed record of the amount of work, as measured by time, performed by the patients in the course of the year.

Believing this to be a progressive step, we give Dr. Bemis the benefit of an exposition of his views by quoting his remarks in full:—

"During the past year much attention has been paid to the subject of labour. Strict and methodical accounts have been kept of the number of patients employed, and the time of service. More than twenty-one thousand days' work have been performed, a great variety and amount of labour having been accomplished. Strictly as our account has been kept, however, we shall be misled if we rely too much upon it. We must remember that for every four or five patients engaged in ordinary labour, a competent person must be paid whose time is necessarily spent in directing and assisting the insane at their work, and who often accomplishes with his four or five patients less labour, and of an inferior quality, than he would have performed alone. Then there is the loss of time and expense attending the more frequent elopements. Then, too, there is the great liability to accident from the use of tools among the insane, and the increased danger, from fire, when so large a number of patients are permitted the privileges necessary to induce them to labour.

"Besides these considerations, the introduction of labour as a system requires other outlays.

"We are thoroughly satisfied, however, that occupation of some kind has a curative influence of the highest importance, and in order to realize the full benefit of it we have taken unwearied pains in this direction.

"At all times the character of the labour has been regulated with due regard to the patient's feelings, and so far as possible, in accordance with his previous occupation, and as great a variety of labour has been provided as our limited means would justify."

Other branches of the moral treatment are mentioned in the subjoined extract:—

"It gives us pleasure to be able to report a good degree of success in our efforts to amuse, instruct, and gratify in our patients a wholesome love of variety, and to introduce to them many new subjects of thought, lectures, readings, social entertainments of various kinds, by books, pictures, and maps, and by every means which our limited income would allow. Our lecture season continued with some interruptions through the entire year. Concerts of sacred music have also frequently been given by friends from the city. Sociables are often held during the long winter evenings, at which both sexes join in all the games common on such occasions. In all our labours every effort has been made to keep alive the mental faculties of the patients by introducing to them such subjects of thought as require only simple and easy mental action, hoping thereby, if possible, to assist in arresting the progress of disease, and to prevent

the remaining faculties from being involved in that general ruin which is sure to overtake the minds of those who cannot be interested in anything beyond the sphere of their own personality."

7. Some of the most important results of the record of the medical history of the *State Lunatic Hospital* at Northampton, Massachusetts, for the official year ending with the close of September, 1862, are as follows:—

	Men.	Women.	Total.
Patients at the beginning of the year . . . . .	149	183	332
Admitted in the course of the year . . . . .	64	48	112
Whole number . . . . .	213	231	444
Discharged, including deaths . . . . .	66	46	112
Remaining at the end of the year . . . . .	147	185	332
Died . . . . .	9	9	18

Died of marasmus, 5; phthisis, 5; epilepsy, 2; general paralysis, 2; suicide, 2; apoplexy, 1; maniacal exhaustion, 1.

Although we are informed by the report that the hospital, during the year referred to, has enjoyed an "exemption from sickness and a degree of success which call for the deepest gratitude," yet nothing is said in regard to cures. If any patient was restored to his normal mental condition, the fact has been overlooked or disregarded in the preparation of the report.

The omission is to be regretted; and it is to be hoped that this method of reporting will not be continued. We hold that the superintendent of every hospital for the insane is in honour bound to give to the profession such scientific knowledge as his position enables him to accumulate, a species of knowledge which cannot be acquired in any other place. If, therefore, the authorities to whom a superintendent may directly address his report, can excuse him for the neglect to exhibit the result of the year's labour in regard to one of the primary objects of the hospital, the members of the profession will at least be disposed to think that such an exhibition ought to have been made.

It is well known that a very large proportion of the cases at Northampton are chronic, and consequently incurable. All just allowance should be, and is, made for this unfavourable condition of things at that hospital. It is not expected that the cures will be numerous; and, for ourselves, we should have read the report with much greater satisfaction if we had met with the clause "cured, none," than we have as it now stands, devoid of any allusion to cures or curability.

In his remarks upon "premature removals," of which it is stated that the number has been unusually large, Dr. Prince says:—

"Not only is permanent and vital injury often done to patients themselves by premature removal from the salutary restraints of a hospital, but there are other consequences not less unpleasant, involving great injustice toward the institution in which they have been placed, at a time when disease had not removed all possibility of feeling. Few patients go away from home, among strangers, to a hospital voluntarily. There is always more or less coercion. When one leaves the hospital before he is cured, he rarely fails to connect all the disagreeable circumstances of his illness, as far as memory, and often as far as his imagination serves him, with those who have *last* exercised control over him. This impression seldom wears entirely away, although recovery may take place. In some cases it does, but, in many, the recollection of pure fancies as realities is never corrected."

A considerable part of the report before us is occupied by a discussion of the question of adequate employment for the chronic insane. Dr. Prince thinks that some of this class might be employed with a special view to the *profits* of labour. But he says, "In the hospital let us have labour hygienic but not necessarily profitable. Let it cure, if it may; but in the name of humanity do not oblige it to be profitable. Let it soothe and heal and amuse if it can, but let us look elsewhere for its profits. Few superintendents can spare from other pressing and higher duties the time and attention necessary to give any hope of success in industrial occupations in their hospitals." Hence he would have

separate institutions for the labouring chronic insane; and, having specially in view the inmates of the State institutions of Massachusetts, he writes as follows:

"Perhaps a judicious system of *colonization*, as practised in some European countries, may be found equally beneficial to the patient and the treasury of the commonwealth. That these patients are not entirely unproductive, as a class, the industrial statistics of some institutions clearly show. The amount of labour performed in some of these, if the figures are reliable, is quite remarkable, and strongly suggestive of the idea that, by proper selection of cases, proper care and superintendence, in suitable localities, *under a suitable system of general supervision*, much might be done to develop a latent element of profit by fanning into life the now dormant and fading spark of usefulness in these truly pitiable sons and daughters of misfortune. A few trials, entirely experimental, made during the year now closed, lead to the belief that much good, with little risk, would result from a carefully conducted series of experiments in this direction under suitable skilful supervision."

We often present to our readers, without comment, views and opinions touching the management of the insane which are diametrically opposed to our own; but, in the present case, as the subject is of great importance, we do not feel justified in silently passing it by. Our space, however, does not admit of a free discussion of it, and we shall therefore confine ourselves almost exclusively to the expression of an opinion.

It is many years since we arrived at the conclusion that the best of all known plans of treating the insane is that upon which the American hospitals are based. The opinion then formed has neither been changed nor in any way modified by intervening events or further observation and study. If there be, as there unquestionably is, a class of chronic insane who can be employed with benefit to themselves and pecuniary profit to any one, let that class form a part of the inmates of each hospital, and let them there be systematically employed. If the superintendent has not time to conduct this industrial department, let a special officer be entrusted with its management. We think that the most striking examples of the profitable employment of the insane in foreign countries will be found in hospitals identical, or essentially similar, in plan to those of the United States.

It appears that the hospital at Northampton is liberally supplied with means for the recreation, entertainment, and amusement of its patients.

The patients are assembled at a religious exercise on each evening of the week not otherwise occupied.

8. The following statistics are from the report for 1862 of the *Maine Insane Hospital*.—

	Men.	Women.	Total.
Patients in hospital November 30, 1861 . . . . .	133	119	252
Admitted in course of the year . . . . .	69	56	125
Whole number . . . . .	202	175	377
Discharged, including deaths . . . . .	74	45	119
Remaining November 30, 1862 . . . . .	128	130	258
Of those discharged, there were cured . . . . .	34	23	57
Died . . . . .	15	4	19

Died of exhaustive mania, 3; apoplexy, 3; consumption, 4; general paralysis, congestion of lungs, typhoid fever, epilepsy, dysentery, chronic diarrhœa, serous epilepsy, delirium tremens, and old age and chronic insanity, 1 each. The insanity of one of the patients is attributed to "military excitement."

The average number of patients for the year was 254. "Every dormitory was occupied," and some harmless, incurable cases were discharged to make room for others. Under these circumstances, Dr. Harlow urges the necessity of further provision for the insane in the State.

Heating by steam, and artificial ventilation by a fan, have been adopted at this hospital; and it is asserted in the report that "it is decidedly the most valuable improvement that has ever been introduced."

No apology need be made for the insertion, even in this place, of the following



brief notice of the Hon. Reuel Williams, a member of the Board of Trustees, who died in the course of the year covered by the report:—

“With a father's care he watched over the interests of the hospital from its beginning, spending days of his valuable time in devising means to promote the comfort and well-being of those who had fallen victims to this worst of human ills, and had come hither for relief. For more than fifteen years he was an active member of the Board of Trustees, performing much of the heavy work which devolved upon the Board, without ever receiving a dollar of compensation for his labour; and when advancing years admonished him that it was time to lay aside the cares of public business, and he resigned the office of Trustee, yet his interest in the institution did not abate. Often his thoughts adverted to it, and his steps were directed hither, where his counsel and advice were freely given to facilitate the best good of the Asylum.”

Dr. Harlow occupies several pages in the discussion of the subject: “A popular indifference to, and disregard of, the laws of physical health, a prolific source of the increasing insanity in the community.” In notices of other reports, we have heretofore so fully represented the views contained in this discussion that, in consideration of our limited space, we must be excused from making any extracts.

P. E.

---

**ART. XIX.**—*Medico-Chirurgical Transactions.* Published by the Medical and Chirurgical Society of London. (Second Series, Volume the twenty-eighth.) London, 1863. 8vo. pp. 225.

THIS volume contains twenty original communications. Abstracts of seven of these papers have been published in the numbers of this Journal for last year, in the quarterly summaries of improvements and discoveries in the medical sciences.

I. *Account of a recent remarkable case of Scrotal Elephantiasis, in which the tumour was removed.* By JOHN WIBLIN.—The subject of this history was a man about forty years of age, a native of Southampton, employed in the coasting trade from this port to several of the other ports of Great Britain. In 1844 he ruptured himself on both sides. In 1848 he contracted syphilis, and about three months afterwards the foreskin and integuments of the penis began to enlarge. From this period the scrotum also gradually increased in size, becoming hard, brawny, heavier, and more pendulous.

When the case first came under observation, in the fall of 1862, the abnormal growth of the prepuce and scrotum had attained the following dimensions: *Preputial growth.*—Length 16 inches; circumferences 13 inches. *Scrotal growth.*—Vertical circumference, from the symphysis pubis, following the raphe of the scrotum to within two inches of the anus, 3 feet 6 inches; lateral circumference 3 feet 14 inches. The weight of the mass, when suspended by means of a steelyard, was ascertained to be more than fifty pounds.

The removal of the diseased parts was decided upon and performed on the 21st of September. For the purpose of draining the parts of blood, they were kept elevated by tackling fastened to the ceiling, and to diminish the risk arising from hemorrhage, a large clamp, formed of two parallel bars connected by a screw at each extremity, was applied across the neck of the tumour, which was kept surrounded by ice for six hours before the operation. The external incisions were made along the dorsum of the penis to the symphysis pubis, and from thence on each side of the tumour to the most depending part of the mass. The left testicle was wounded during the performance of the operation and removed, and a hernial sac, occupied by several coils of intestine, which could not be returned within the abdominal cavity, was opened. The man died on the 26th, five days after the operation, from gangrene of the protruded gut.

The history of this case is accompanied by a tabulated summary of the chief recorded instances of elephantiasis of the scrotum, at least of those known to the reporter, and by notes from the observations of other surgeons upon the

disease. Several important memoirs have here been overlooked, as for instance those of Peixoto, of Bresil, in the *Mémoires de l'Académie de Médecine* (tome xix., Paris, 1855), of Clot-Bey, of Egypt, in the *Mémoires de la Société de Chirurgie* (t. iv.), together with the remarkable report of H. Larrey, contained in the volume last cited.

The unfortunate result of the attempt to remove the disease in this case shows the justness of the rule laid down, never to commence its extirpation before being assured of the reduction of protruded intestine. This paper is illustrated by a plate containing four figures, representing the different steps of the operation.

II. *Supplement to a paper entitled an Analysis of 162 Cases of Ovariectomy, which have occurred in Great Britain, published in Volume xxxiv. of the Medico-Chirurgical Transactions.* By ROBERT LEE, M. D.—This communication, together with a report of the discussion that followed its reading before the Society, will be found in the number of this Journal for January, 1863. From time to time, whenever the propriety of performing any doubtful operation is the subject of discussion before the profession, very singular and startling enunciations are made as to what is right or wrong in surgical morals. We do not consider that this is an occasion for entering upon this topic, but would express the regret that the moral rules by which surgeons are to be guided in the performance of operations are not better understood. Dr. Lee says that in the cases of ovariectomy called unsuccessful, the patients have been suddenly deprived of life by violence without any necessity. If this be so, the operator is guilty of a fearful error. In a subsequent paper (the xvth) in this volume, Dr. Lee, who maintains that ovariectomy is an unjustifiable operation, advocates the destruction of the life of the fœtus in certain cases of albuminuria. We believe ourselves that he may be right in one case, and that he is certainly wrong in the other.

III. *Case of Poisoning by Oil of Wormwood (Artemisia absinthium).* By WILLIAM SMITH.—From the symptoms witnessed in this case, where half an ounce was swallowed, it is evident that the oil of wormwood may be classed amongst the narcotico-irritants, causing stupor and insensibility, and at the same time producing local irritation of the mucous membrane of the stomach!

IV. *A contribution to the Natural History of Hereditary Transmission.* By HORACE DOBELL, M. D.—In this communication is given the history of a defect in the formation of the hands, continued through five generations. The defect consisted in great thickness of the joints of the fingers, and great crookedness in the ends of the ring and little fingers.

The deformity affected males and females indiscriminately; when it was inherited from the father it was most marked; and no instance had occurred where it returned after it had once been lost.

Dr. Dobell merely points out the leading peculiarities of this case, without referring to what is known to generally occur in similar cases of hereditary transmission of abnormalities.

To us the most interesting point is the fact that in the fourth generation a marriage between two first cousins, both with the deformity, gave issue to children with perfect hands, as one exemplifying the law in regard to the duration of individual types.

V. *Case of a Woman with Three Hands; illustrated by analogous malformations in the lower animals.* By J. JARDINE MURRAY. Communicated by C. H. Moore.—The case of malformation reported in this paper is one of extraordinary interest, as no similar one has ever been described by unquestionable authority. St. Hilaire states that he does not know any well determined case of this anomaly in the human being, and that it has only been seen in animals with hoofs. (*Hist. Gén. et Part. des Anomalies de l'Organisation*, vol. i. p. 696.) He does indeed refer to a case recorded by Rueff of a child with twelve fingers to each hand and twelve toes to each foot (*De Conceptu et Generatione Hominis*, liv. v. chap. iii.), but adds that this work is ancient and not authentic.

The case reported by Mr. Murray is that of a woman, 38 years of age, whose

left upper extremity terminated in eight fingers. A plate by which the paper is accompanied gives a good idea of the double-hand, which cannot be given by any verbal description.

VI. *On the History and Progress of Ovariectomy in Great Britain; with observations founded on personal experience of the operation in fifty cases.* By T. SPENCER WELLS.—This communication will be found an interesting contribution to the literature of ovariectomy. Mr. Wells claims that the operation is one of British origin, which of course will not be admitted in this country.

VII. *Case of White Fibro-serous Discharges from the Thigh.* By A. B. BUCHANAN, M. D. Communicated by E. H. Sieveking, M. D.—An abstract of this paper is published in the number of this Journal for April, 1863. It is one of considerable importance from the light it seems to throw on the pathological nature of so-called chylous or chylo-serous discharges in general, as well as from the great rarity of such an affection.

This communication is accompanied by a plate representing the cutaneous surface of the thigh, the white discharge flowing, and the cellular elements in a portion of the coagulum.

VIII.—*Observations upon Syphilis, in its Manifestations as a Constitutional Disease.* By JEFFERY A. MARSTON, M. D., Royal Artillery. Communicated by Henry Lee.—In a communication contained in the preceding number of the *Transactions*,<sup>1</sup> Dr. Marston has described the result of his observations upon syphilis in its primary forms. In the present one he treats of what are called the secondary and tertiary symptoms.

The evolution and succession of syphilitic symptoms as ordinarily witnessed among soldiers is thus succinctly traced:—

"After the true syphilitic primary sore upon the penis, the inguinal glands commence to become symmetrically enlarged and indurated, at a date corresponding, pretty accurately, with that of the induration appearing in the chancre. These chains of inguinal glands remain so affected for a very long time, and in spite of a course of mercurials, and, hence offer a reliable test as to an infection with syphilis at a previous date.

"The earliest constitutional occurrences after these, are—a gradually advancing chloro-anæmia, with, frequently, an engorgement of some of the cervical glands (particularly those in the posterior and lateral aspects of the cervical region), and vague muscular pains, simulating rheumatism. The anæmia becomes early marked, but it is obviously difficult to define the exact date of its appearance, or to say how much may be due to hospital treatment, &c.

"Enlargement of the posterior cervical glands I have traced as early as the fifth week from the date of the appearance of a primary sore, but it is generally nearer eight to twelve weeks that these can be discovered. They are much less frequently affected, and remain enlarged for a shorter period than those of the inguinal regions, and differ from them in feeling swollen only, without that well-defined hardness present in the latter.

"The rheumatic or osteocopic pains are not always nocturnal only in character, and vary very much in degree and amount. They sometimes simulate a fibrous rheumatism and affect the sheaths of tendons and muscles. Sometimes, however, they are distinctly nocturnal, and are attended with much tenderness along the course of the long bones; syphilitic nodes, however, rarely appearing.

"Often sore throat does not appear at all; when it does, it is one of the earlier symptoms. It varies in degree from a localized redness and congestion to one of extensive ulceration.

"In every case of infecting chancre, when not treated by specific remedies, that I have been to trace, some constitutional symptoms (however slight these might have been) have appeared within three months from the date of the primary disease.

"In the great majority of cases the syphilide of the skin makes its appearance after these premonitory symptoms, and without any pyrexia, and, at first,

<sup>1</sup> See the number of this Journal for April, 1863, page 402.

is so trifling in character as to escape the attention of the individual. It ordinarily appears in the form of a dull-red erythema, upon which the squamous and other forms of eruption develop themselves.

"In no disease of the skin are these affections of so mixed a character as in those caused by the syphilitic virus. Of course cases of unmixed and typical examples of psoriasis, lepra, &c., are common enough, but the majority will partake of more than one affection at the same time, and upon the same or different parts of the body.

"This commingling and admixture of eruptions of syphilitic origin is very peculiar, and renders their classification difficult.

"Iritis, under my observation, has appeared more frequently in the papular forms of syphilide than in the squamous or pustular.

"In the majority of instances (happily) no tertiary symptoms appear. After many relapses perhaps of the secondary symptoms, the patient slowly recovers. Of the remaining cases, some have tertiary symptoms, slight in degree; others, these symptoms very severe and difficult of cure. Of course, however, it requires that patients should be for years under observation before we can conclude that no tertiary symptoms have followed.

"I may here remark, that constitutional symptoms appear under two typical limits, which contrast with one another.

"Thus, a cutaneous syphilide, wide in extent and very superficial in character, denotes the milder degree of constitutional infection; while the discrete and localized morbid processes, affecting the deeper tissues of the skin and mucous membrane, have the opposite character of a severe degree of syphilitic infection.<sup>1</sup>

"With a view to prognosis, it is important to inquire: What relation (if any) has the severity of the primaries to those of the later symptoms?

"From a consideration of my own notes of cases, I should infer that the following would be as approximate expressions to the truth as the facts warrant.

"1st. That the greater the induration, and the longer the period during which primaries remained unhealed, the more certain will be the severity of the constitutional infection.

"2d. That the amount of ulceration, &c., of the primary sore stands in some relation to the worst and more intractable forms of secondary affections: *e. g.*, the pustular, ecthymatous, rupitic, the unhealthy ulcerations, nodes and gummatous tumours.

"If the preceding gives a rough outline of the ordinary course of syphilis, it must not be supposed that the evolution and succession of the stages and symptoms of that disease, as witnessed in the army, are always so regular.

"Assuming that when an indurated sore has been recognized by the army medical officer, some specific treatment has been applied, and that soldiers are exposed to changes of climate, we might infer, what is actually the case, that the constitutional symptoms would be irregular in their appearance, and varied in their kind.

"Instead of the regular course, we find that primary disease and affections of bones may, though very rarely, coexist, or the tertiary occur after the primary symptoms, without the intermediate stage; while symptoms, usually denominated secondary, may coexist with osteal affections; also, after variable but long periods often of apparent latency of the syphilitic element, there may be a sudden outbreak of constitutional symptoms; and lastly, a chloro-anæmic and cachectic appearance may be the only evidence of a syphilitic taint, without the appearance of the ordinary phenomena of that disease.

"An attack of constitutional syphilis so frequently appears in the soldier (after a period of latency of varying duration), consecutive to hospital treat-

<sup>1</sup> The results obtained from "confrontation" upon the continent tend to establish the doctrine of the two sores (soft non-infecting, indurated infecting) generating their like; but no observations have been yet made as to whether the severer and milder degrees of syphilitic infection result from different degrees of activity or potency in the virus—*e. g.*, as obtained from different stages of the disease furnishing such virus; or whether these depend upon some constitutional differences in the persons of the recipients of the virus.

ment for some disease unconnected with syphilis, that, I fancy, we may often conceive the latter to stand in the light of an exciting cause. A large proportion of men, whilst recruits, unfortunately suffer from primary sore. In some, the secondaries follow so speedily, and affect the constitution, development, and nutrition of the body so gravely, as to render them for years, or permanently, unfit for the performance of a soldier's duties; but with others it is far otherwise. The recruit in due course goes abroad, after having been specifically treated and cured (?) at home, and years afterward, perhaps, suffers from some disease incidental to the climate, or a pulmonary affection, from which he recovers by a tedious convalescence, during which symptoms of syphilitic disease make their appearance. Here, probably, the efficient cause has been the primary infection, the disturbing cause the treatment, and the exciting cause the last disorder, its treatment, or the confinement within the walls of a hospital."

Both of these papers of Dr. Marston are among the best of the numerous recent important contributions to our knowledge of syphilis.

**IX. Remarks on Two Cases of Kelis.** By THOMAS LONGMORE, Professor of Military Surgery, &c.—This communication contains the careful description of two cases of kelis, with some remarks upon this rare and intractable affection of the skin. It is accompanied by a plate containing two figures representing the keloid growths as they appeared upon the back and chest.

**X. On a Remarkable Case of Lesion of the Medulla Oblongata, with Remarks, &c.** By A. T. H. WATERS, M. D.—An abstract of this case, one of importance on account of its bearings on the views of physiologists with reference to the functions of some portions of the nervous centres, is published in the number of this journal for July, 1863. This communication is accompanied by a plate representing the lacerated portions of the medulla oblongata.

**XI. A Contribution to the Pathology of the Crura Cerebri.** By HERMANN WEBER, M. D.—An abstract of this interesting paper, giving the history of a case of hemorrhage into the left crus cerebri, and a careful comparison of the symptoms with those observed in similar cases, and with the result of vivisections, is published in the number of this journal for July, of the past year. A plate accompanies this communication showing the seat of the hemorrhage.

**XII. Description of a Fœtus born without heart, brain, lungs, or liver.** By WILLIAM H. DICKINSON.—An abstract of this paper, together with the remarks called forth by its reading before the Society, is published in the number of this journal for July, 1863. The communication is illustrated by two plates representing the fœtus previous to dissection, and the internal appearance when the trunk was laid open.

**XIII. Case of Extreme Deformity of the Neck and Forearm from the Cicatrices of a Burn, cured by extension, excision, and transplantation of skin, adjacent and remote.** Exhibited by JOHN WOOD.—The result of the different operations, executed by Mr. Wood in the case here related, is extraordinarily satisfactory, for very often after operations for the relief of deformity following the cicatrization of a burn the condition of the patient is not much improved. The communication will be found an instructive one to any surgeon called upon to relieve in a case of the kind.

**XIV. Account of a Patient upon whom Ovariectomy was performed twice; with Remarks.** By T. SPENCER WELLS.—Mr. Wells, in this communication, gives an account of a case in which he removed an ovarian cyst from a woman, aged 42 years, about eight months after she had undergone a first operation of ovariectomy in the hands of another surgeon.

There was no unusual difficulty in performing the operation. The woman died on the seventh day from peritonitis.

Cases where ovariectomy has been performed twice on the same person are, and most probably always shall be, exceedingly rare.

**XV. On the Induction of Premature Labour in cases of Pregnancy, complicated with Albuminous Urine, Dropsy, and Amaurosis.** By ROBERT LEE, M. D.—The history of three cases recorded in this paper, is favourable to the

supposition that in cases of albuminuria with amaurosis, good results to the mother may be expected by the premature expulsion of the contents of the uterus. This, however, is not to be accomplished, in case the fœtus is living and not yet viable, without the taking the life of an innocent human being, under what we must consider entirely unjustifiable circumstances.

XVI. *Description of a New Iris Forceps.* Invented by W. R. BEAUMONT, Late Professor of Surgery in the University of Toronto, etc.—The iris forceps Mr. Beaumont submits to the consideration of the profession in this communication, has a fixed and a sliding blade, but differs from those generally in use, in more completely concealing the point of the hook, and more securely holding the piece of the iris taken up.

The instrument and the mode of holding it are represented by a wood engraving.

XVII. *A case of Strangulation of the Stomach in an Umbilical Rupture, and of death during its reduction under Chloroform.* By CHARLES H. MOORE.—An abstract of this interesting case is published in the number of this Journal for October, 1863.

XVIII. *A case of Transposition of the Great Vessels of the Heart.* By JOHN COCKLE, M. D. Communicated by Dr. Sibson.—The case related by Dr. Cockle is one, where after the existence during life of symptoms commonly witnessed in cases of transposition of the vessels, at the *post-mortem* examination the aorta was found to arise from the right ventricle, while the pulmonary artery sprang from the left. The superior and inferior vena cava entered the right auricle in the usual way; the ductus arteriosus was completely closed; the foramen ovale when stretched was largely patent.

The case is related in minute detail, not only as regards the symptoms witnessed during life, but also as regards the appearances observed at the *post-mortem* examination. The history is accompanied by highly interesting remarks, and moreover by tables giving all the known cases of transposition of the great vessels of the heart, with the principal features of each case. These tables are three in number: the first includes all those cases in which transposition of the vessels is associated with arrested development and malposition of the trunks of the main vessels; structural changes in the various orifices of the heart; deficiency of the ventricular septum; transposition of the ventricles and their valves.

The second comprises the cases in which transposition of the vessels is accompanied by patency, both of the foramen ovale and of the ductus arteriosus. The third table contains the few examples in which transposition of the vessels occurs with single patency alone of the foramen ovale.

The author's case, with three others, those of Gamage, Wistar, and D'Alton, are all that have ever been reported, where the only possible communication between the two sides of the heart, and consequently between the systemic and pulmonic circulation, was through the foramen ovale. It is very interesting to notice how perfectly they coincide in every important particular, at least in all such as have been noted by the observer.

This paper is illustrated by the plates containing three figures.

XIX. *A case of Popliteal Aneurism, cured by digital compression.* By GEORGE SOUTHAM. Communicated by Dr. Sibson.—An abstract of this communication is published in the number of this Journal for October, 1863.

XX. *Cases of Ichthyosis Spuria vel Sebacea.* By JOHN W. OGLE.—These cases occurred in the persons of two sisters, aged respectively ten and fourteen years, who resided a few miles distant from London, and who enjoyed good general health. A daily warm bath, with a lotion of diluted liquor potassæ, was speedily effectual in the removal of the thick scales of dirt and sebaceous matter to which the appearance similar to ichthyosis is due.

A plate accompanies this communication representing the appearance of the foot in one of the cases.

W. F. A.

ART. XX.—*Guy's Hospital Reports*. Edited by SAMUEL WILKS, M.D., and ALFRED POLAND. Third Series, vol. IX. London: John Churchill & Sons. 1863. 8vo. pp. 343.

THE present volume of this valuable publication contains ten original communications, and eleven lithographic plates. As has been our practice, we shall lay before our readers a full analysis of its contents:—

I. *On the Syphilitic Affections of Internal Organs*. By SAMUEL WILKS, M.D.

It is known at the present day, that when syphilitic virus has entered the system, every tissue in the body may be affected, and always in one particular and characteristic manner. A low form of lymph, or fibro-plastic material, occasionally modified in character to a slight extent by the organ in which it occurs, may be, and sometimes is, everywhere effused in the internal organs as well as the external. The tumours of the solid organs are formed of circumscribed depositions of this albumino-fibrous material, which on the surface of the body may constitute merely the base and border of an ulcer. We see the same in syphilis as in cancer and in tubercle, masses of disease in the solid organs, and ulcers on the skin or mucous membrane.

This paper of Dr. Wilks is written with the object of affording additional proof of the correctness of these views of the venereal disease, by the publication of cases that have occurred at Guy's Hospital. According to his own statement, and for the reason that surgeons have almost exclusively treated syphilitic diseases, the profession in England is still sceptical in regard to the infection of the internal organs by the venereal virus.

In the treatise of Dr. Bumstead, the profession in this country have had presented to them an admirable digest of all that is now known concerning syphilis, and we have found nothing in the carefully prepared paper before us to point out as novel, or as calling for particular comment.

This paper is accompanied by four plates, representing the effects of syphilis upon the human body.

II. *On Pulsating and Aneurismal Tumours of the Abdomen*. By S. O. HABERSHON, M.D.

This paper contains the detailed histories of thirteen cases of aneurismal tumour of the abdomen, and of three of non-aneurismal but pulsating tumours. These latter three were respectively of cancerous disease of the glands behind the stomach, of cancerous disease at the pyloric extremity, and of suppuration in the lesser omentum.

These clinical observations are preceded by some general remarks on the subject of abdominal pulsating tumours that are highly interesting and instructive. Indeed, under the circumstances, they could not fail to be so.

The symptoms of aneurismal disease in the abdomen are regarded in three aspects by Dr. Habershon: *the negative signs, the character of the pain, and the character of the pulsating tumour*. As to the negative signs, there is a remarkable absence of constitutional disturbance, until the patient is worn out by the intensity and long continuance of the pain. This pain is a very constant indication of aneurism; it is of a double character, one constant and uniform, the other more intense and paroxysmal; the former is wearisome and distressing by its duration, the other agonizing in its severity. The first kind of pain has been attributed by some observers to erosion of the vertebræ, but Dr. Habershon believes it to be due to the distension of nerve-filaments upon the aneurismal sac. It is remarked by Dr. Stokes that erosion of the vertebræ may exist without pain, and pain may also exist without erosion.

The third characteristic sign of abdominal aneurism, the presence of a pulsating tumour, is thus described:—

"Aneurism generally occurs near the commencement of the abdominal aorta, in the neighbourhood of the celiac axis, and the growth extends from this part; if the tumour enlarges upwards from the pelvis, it is more likely to be ovarian

or glandular. As the tumour passes downwards, it is more frequently found on the left than on the right side; but if the coeliac axis or the mesenteric artery be affected, the sac may be found to increase directly forwards. The pulsation is generally uniform, and is not removed by withdrawing the pressure from the abdominal aorta. The uniformity of the pulsation is modified if the sac be situated behind the strong lumbar fascia, or if it contain much fibrinous deposit. The pulsation has also been shown by Dr. Lees to be diastolic in character, but it is sometimes very difficult to find an interval between the systole of the heart and the aneurismal impulse. A bruit may often be heard at the site of the tumour, but this symptom is not unfrequently absent; and the bruit, if present, may be systolic or double; generally, however, it is systolic. Dr. Corrigan has noticed that the murmur is at an early stage more distinct when the patient is in a recumbent than when in an erect posture, because there is less tension in the sac; but a tumour pressing upon the aorta often communicates a systolic bruit, and one which is more distinct in a recumbent position, on account of greater pressure being then exerted upon the vessel. When regurgitation through the aortic valves also exists, we might easily be misled by the presence of an abdominal bruit, for in such cases there is much arterial throbbing, and the lining membrane of the arteries is often diseased. It is remarkable, however, that aneurism of the abdominal aorta is much less frequently associated with disease of the heart than is aneurism of the thoracic aorta; the heart is in the former generally healthy, although we give several instances in which the reverse was the case (Nos. 8 and 9).

"Pulsation is not always equally distinct in abdominal tumours, for when occurring at the posterior part of the aorta, close to the diaphragm, and when the sac passes *beneath the strong lumbar fascia*, pulsation is very indistinct at the earlier stages, as in No. 1. When the tumour extends forwards impulse is more easily perceived, and it is generally felt in the left hypochondrium, or at the scrobiculus cordis. Occasionally it is first perceived in the loin, between the last rib and the crest of the ilium. As the sac enlarges, there may be visceral displacement, the liver may be pushed forward, so also the kidney, spleen, or pancreas. The thoracic viscera are also encroached upon, and dyspnoea and palpitation of the heart are induced."

Of course the diagnosis of pulsating tumours of the abdomen must be founded upon the correspondence of the symptoms presented with those described as characteristic of these tumours. In their cause, duration, and termination there is no striking peculiarity, that is, other than as aneurismal tumours. The treatment should consist in perfect rest, the allowance of a sustaining but unstimulating diet, the regulation of the bowels by the mildest aperients, or by enemata, and, if there be arterial excitement, the administration of the mineral acids with tincture of digitalis. In the relief of the suffering, belladonna sometimes gives a little alleviation; opiates, morphia, and chloroform are alike unavailing.

This paper is accompanied by a plate, containing two figures representing the specimens derived from a case where a localized abscess in the lesser omentum formed a pulsating tumour.

### III. *The Stereoscope and Stereoscopic Results.* By JOSEPH TOWNE. Section III.

In this communication Mr. Towne continues the investigation entered upon in the last volume of the Reports, for the purpose of inquiring whether the stereoscope can be accepted as an exponent of ordinary vision, and whether the stereoscopic theory is consistent with stereoscopic results. The existence of any necessary physiological connection between corresponding points of the two retinæ, which the stereoscopic theory ignores, and which is the most important point in the whole subject, is the question specially treated in the present paper. From well devised experimentation, and by clear and convincing reasoning, Mr. Towne concludes that the binocular effect known as stereoscopic, is not only perfectly consistent with, but that it results from a *necessary physiological connection* existing between corresponding parts of the two retinæ.

<sup>1</sup> A good way to do this is to place the patient on his hands and knees.



The stereoscope is not, therefore, to be regarded as an exponent of normal vision. Stereoscopic vision requires a complete separation, a perfect isolation, of the eyes, so that the result should be regarded as a combination of *two monocular pictures*, rather than as the exhibition of one *true binocular* picture.

Two plates, one of which is coloured, is attached to this paper, in illustration of normal and of stereoscopic vision.

IV. *The Stereoscopic Test for the Retinæ.* By JOSEPH TOWNE. Section IV.

By means of the ophthalmoscope we are enabled to look into the eye, and see the visible signs of organic change. As a means of testing the state of vision, with reference to conditions which leave no mark upon the retinæ, Mr. Towne suggests an additional method of examination by the use of the stereoscope. With the assistance of this instrument the several divisions of the retinæ can be treated in detail, and we can discern precisely what each individual part of the eye can do.

Mr. Towne says:—

"It is, then, those phenomena that are beyond the reach of the ophthalmoscope that the stereoscope lays open to our view, and this, too, without submitting the patient to any painful examination, and by means so simple that they are within the reach of every intelligent observer. The great point in this method of examination consists in separating the different parts of the retinæ, and this is effected by bringing into simultaneous action those portions which are non-reciprocal. Thus, by means of the first slide, we obtain a distinct view of the two *nasal* portions of the field, so that we have the images of the two nasal sides of the retinæ, lying side by side, and by comparison we can detect the slightest difference between the two, down to a faint shadow or gray tint, which may frequently be observed upon the one side, while the other remains clear and bright; by means of the second slide, we obtain precisely the same results, with reference to the *temporal* halves of the retinæ; we may also observe that the portions of the retinæ brought into simultaneous action, being non-reciprocal, the impression upon the one eye does not in the slightest degree affect the impression upon the other eye, impressions upon non-reciprocal portions of the two retinæ being, we believe, perfectly distinct. Hence we obtain, without disturbing the concurrent action of the eyes, an exact knowledge in detail of the condition of every part of the retinæ, so far as they are brought into exercise in the stereoscopic field, while at the same time we gain the additional advantage of comparing each portion respectively with its fellow.

"It has been shown that non-reciprocal parts of the retinæ will, if the field be divided in accordance with these divisions of the retinæ, so far act in concert that the images referred to each side respectively will meet in the centre and form one *single* picture of the entire field; in short, that two slides may be prepared, omitting in the one slide the inner halves of the field, and omitting in the other slide the outer halves of the field, each of which, if viewed in the stereoscope, will represent the field in a single picture, this picture consisting of two distinct halves, and resulting from non-reciprocal halves of the two retinæ."

The forms of the slides, which will be found convenient for this method of examination, are very carefully described and represented by numerous figures, and their application is illustrated by practical examples, twelve cases being related.

Three plates are attached to this paper, illustrating the tests for the condition of the retinæ.

V. *Case in which a large quantity of Nitrate of Potash was taken medicinally.* Elimination of this salt by the Urine, with Remarks. By Dr. WILKS and Dr. ALFRED S. TAYLOR.

In the case here related, one of renal dropsy, the patient, a man aged 34 years, took, in divided doses, between October 28th and December 26th, 1862, one pound twelve ounces and six drachms of nitrate of potash. In a period of fifty-nine days he took, therefore, a quantity of nitre amounting to twenty-eight fatal doses.

By chemical analysis it was found that 158.7 grains of the nitrate of potash were being carried out by the urine daily, while the patient was taking 270 grains

in three doses. About one half of the nitre, therefore, was eliminated by the urine. \*It is well known that large quantities of the neutral salts are carried out of the body by the intestines, and in this way we are to suppose the rest of the nitre to have been eliminated.

VI. *On the Cooling of the Human Body after Death. Inferences respecting the time of death. Observations of temperature made in 100 cases.* By Dr. ALFRED S. TAYLOR and Dr. WILKS.

By the amount of animal heat still present, the post-mortem rigidity, and the degree of decomposition, we judge, at the examination of a dead body, of the period at which death has taken place. It is not unfrequently a matter of great importance for the purposes of justice, as well as for other reasons, to determine this period with accuracy.

It is with a view of supplying some reliable information in regard to the preservation of the heat of the body that the authors of this paper have collected one hundred cases of deaths in Guy's Hospital, and noticed in their respective columns the age, and cause of death, the time of death, the temperature of the air, as well as the dryness or wetness, and the temperature of the body at one or more intervals after death. No special notes have been made with regard to the amount of post-mortem rigidity and degree of decomposition, except the body has presented something remarkable, in these respects.

A summary of the observations accorded in these tables leads to the following conclusions: If the periods of time be divided, first, into those which are included between two and three hours; secondly, between four and five hours; thirdly, between six and eight; and fourthly, twelve hours, including one or two cases extending to fourteen hours; then we find that the results are as follows:—

	First period.	Second period.	Third period.	Fourth period.
Number of observations . . . . .	76	49	29	35
Maximum temperature of body . . . . .	94°	86°	80°	79°
Minimum temperature of body . . . . .	60°	62°	60°	56°
Average temperature . . . . .	77°	74°	70°	69°

The temperature of the body was taken by placing the naked bulb of a good thermometer uncovered on the skin of the abdomen. As the coverings of the body have an influence upon the retention of its caloric, it may be stated that the practice in the dead-house at Guy's Hospital is to place the body in an open hall, and simply cover it with a shirt, shift, or sheet. It must be noticed, also, that the periods in the above table date from the time at which the bodies were received at the dead-house, and the temperatures, if dated from the time of death, would, therefore, be rather lower. In a body from which life has gone, the animal heat remains a longer or a shorter time, according to the age and more or less robust constitution of the subject, according to the disease or kind of death to which the person has succumbed, according to the surrounding temperature and the moisture of the air, and according to the heat conducting power of the materials with which it is in contact. "Sometimes the cooling of the body is complete at the expiration of one or two hours, at other times, it is only completed at the end of a day," is what we read in *Briand et Chaudé*, our favourite authority in matters of this kind; or one at least we have found as reliable as any other. By applying, in any given case, the information afforded by the paper before us, as respects the effects of the circumstances above mentioned in maintaining the heat in the body, something more definite than the statement of *Briand et Chaudé* may be concluded, but the most scrupulous care will be necessary.

VII. *On Tumours.* By THOMAS BRYANT.

The pathology of the new growths denominated in surgical language tumours, has been minutely studied and described. The chief object of Mr. Bryant, in this paper, being to point out the principal features by which one tumour may be distinguished from another, he makes use of their pathological features as a means of diagnosis, and applies the results of scientific knowledge and investigation to purely practical purposes.

This paper, which is one of very considerable length, occupying over fifty-pages, is one we cannot analyze, but will simply direct attention to as interesting and instructive.

VIII. *Sebaceous Tumour within the Tympanum, originating on the External Surface of the Membrana Tympani, Bands of Membrane occupying the Cavity.* By JAMES HINTON.

In the number of this Journal for April, 1862 (page 468), in a review of the forty-fourth volume of the *Medico-Chirurgical Transactions*, attention is directed to a paper by Mr. Toynbee on sebaceous tumours in the external auditory meatus. These sebaceous tumours are there said to grow in the external meatus, and even to reach a considerable size, causing absorption of the bone, without the occurrence of pain. As a general rule the attention of the surgeon is called to them either on account of the deafness which follows the occlusion of the meatus, from the presence of a fetid discharge, or from symptoms of irritation of the brain, which too often terminates in death.

In the case related in this paper, one of these tumours implicating exclusively the membrana tympani, about the size of a pea, was found at the post-mortem examination of the body of a female, eighteen years of age, who had died of tubercular meningitis. During life there had never existed any symptoms to direct attention to the ear. The bands of membrane occupying the cavity of the tympanum were regarded as the remnants of a previous structure, which had incompletely wasted; as evidences of an imperfect "vacuolation" of the tympanic cavity.

This paper is illustrated by a plate containing two figures.

IX. *A Collection of Cases of Foreign Bodies in the Stomach and the Intestines.* By ALFRED POLARD.

In this paper Mr. Polard has collected all the cases he was able to find recorded of foreign bodies in the stomach and bowels. Some of them are exceedingly curious; one of them, that of the knife-eater, who died at Guy's Hospital, and which was reported by Dr. Marcet in vol. xii. of the *Medico-Chirurgical Transactions*, is perhaps as much so as any in medical literature.

Dr. Polard promises to consider the propriety of performing enterotomy and gastrotomy in such cases, in a future number of the reports when introducing a paper on penetrating wounds of the abdomen.

X. *Some Observations on the Iodic Test for Morphia.* By A. DUPRE, Ph. D., F. C. S.

When the morphia or its salts are in a solid state, Dr. Dupre recommends that a drop of starch should be added to the morphia, or the substances supposed to contain it, and the whole carefully evaporated to dryness. The dry residue left, after cooling, should be moistened with iodic acid, when it will assume a dark blue colour, which is still well marked, even though not more than  $\frac{1}{10000}$  the grain of morphia be present. When the morphia is in solution, the mixture of morphia, iodic acid, and starch, should be allowed to stand for ten minutes, and then a very dilute solution of ammonia should be carefully poured upon the top of it. The  $\frac{1}{10000}$ th of a grain in solution will give a satisfactory reaction.

W. F. A.

---

ART. XXI.—*The Surgical Diseases of Children; being the Lettsomian Lectures delivered before the Medical Society of London, March, 1863.* By THOMAS BRYANT, F.R.C.S., Assistant-Surgeon to Guy's Hospital, etc. etc. 12mo. pp. 148. London, 1863.

THESE lectures are devoted to a subject of no trifling importance, and which has not, in all its branches, received that special and separate consideration it demands. Although in the lectures of Mr. Bryant, only some of the more prominent particulars included within the scope of the surgery of infancy and childhood are briefly sketched, his teachings, as far as they go, will be found

replete with sound pathological views and correct practical directions. The lectures will be read with interest by every medical practitioner, and with especial profit by those in whose practice the surgical diseases of infancy and early childhood are the most frequently encountered.

The lectures of Mr. Bryant commence with a very brief sketch of the differences which are found to exist between the surgical affections of early and those of adult life. A difference that is dependent mainly on the greater activity of the vital forces during infancy and childhood, which are then, in great measure, directed for promoting the growth and development of the organism, and not, as in the adult; chiefly for the maintenance of structures which have already attained their full growth and entire development. It is to the abnormal direction given to one or other, or both of these natural processes of growth and development, that most of the special affections of infancy owe their origin.

"All malformations are, hence, according to the lecturer, but results of some defective power, either in the process of growth or of development, or of both; and they are always to be explained by the predominance, diminution, or abnormal manifestation of one or of the other. Hare-lip, fissured palate, monsters, cerebral tumours, spina bifida, etc., are to be explained by some defect in the natural development of the child; its growth and maintenance being, in the majority of instances, perfect of its kind; whilst instances may presently have to be recorded, in which growth alone has proved defective, development being perfect."

The greater activity of the vital process throughout the several organs of the body previous to the adult age—from birth, through infancy and childhood—renders them all particularly prone to take on morbid action; those tissues and organs in which development is progressing the most actively are also the most liable to become the seat of such morbid action.

The first of the surgical affections of the infant treated of by the lecturer is *hare-lip*. From his own experience, and reliable statistics within his reach, Mr. B. shows that hare-lip is always met with in the upper lip, and most frequently to the left of the median line; 63 per cent. of the cases occurring on the left side to 36 on the right. That it is more common in the male than in the female; in the proportion of 70 per cent. of the former to 30 per cent. of the latter. In the simple, uncomplicated cases, the proportions were found to be less marked, however; but as the cases become more complicated, the greater frequency of its occurrence in the male sex is more apparent; the proportion between the sexes being 80 per cent. and 20 per cent. It would also appear to be a rare thing to find a double hare-lip in a female child.

In operating upon uncomplicated cases of hare-lip, the following points are referred to by the lecturer as those which appear to be the most important: *First*, to separate the lip freely from the gum; *second*, to make a free section of the edges of the fissure; and, *third*, to bring the edges accurately together, not by pins, but by fine interrupted sutures, either of silk or wire, introduced at a distance from the wound's margin, and deeply placed.

The plan of operation to which preference is given by the lecturer, is one originally suggested, it is believed, by Malgaigne. By it, he asserts, the labial notch is, almost to a certainty, done away with, and the deformity most completely remedied. It consists in simply paring the edges of the fissure from above downwards, leaving the inverted flap adherent to the labial border. After the raw edges have been brought together and secured, "the lower flaps may be connected by a fine suture." If too long, they can be curtailed, so as just to leave sufficient to fill up the gap, which is too often the result of other plans of operating.

In cases of double hare-lip, the lecturer recommends that both fissures be operated on simultaneously. He has, he assures us, in no instance, witnessed any evil resulting from such a procedure, and is at a loss to understand why it is that surgeons still adhere, in cases of double hare-lip, to the old practice of a separate operation for each fissure, the second being postponed for an interval, after the first has been completed.

In some cases of hare-lip the central incisive or intermaxillary portion of bone is found projecting outwards, and interfering to such an extent with the opera-

tion as to prevent its performance altogether, or, at least, to prevent its success in the removal of deformity. In all such cases the lecturer advises that an attempt be made to press the projecting portion of bone backwards. If this can be effected by a moderate degree of force, he thinks it preferable to the removal of the projecting bone. If, however, the depression of the bone by force should prove impossible or inexpedient, there is no alternative but to remove the projecting portion by means of bone-forceps. It is true that, by removing the central portion of the maxillary bone, we destroy also the incisor teeth; but even this is preferable to allowing the original deformity to remain, especially when we remember that, if the projecting bone be left, the incisor teeth would, in all probability, appear much out of place, even to the extent of piercing the lip, a contingency which the lecturer had, in one case, seen occur.

"There is one other point in the treatment of these cases," remarks the lecturer, "which the surgeon should remember, viz., that if the first operation fail, and union by first intention cannot be procured, there is still a good hope of securing ultimate success by union from secondary adhesion. This end is to be obtained by the application of strapping, or, in preference, sutures to the granulating wound, so that the edges may again be placed in apposition. In several instances which have been tabulated, this practice was followed, and a good result took place. In two cases which came into his hands several years ago, equal success can be recorded. Both were infants, upon whom he had been led to operate at a very early period—two and three weeks only being their respective ages. Sloughing followed the original operation; and, when the parts had begun to granulate, sutures were re-applied, and a good recovery was eventually secured."

The next subject treated of by the lecturer is imperforate anus, or occluded rectum. The description given of the several forms of this congenital deficiency is confessedly borrowed from the excellent and exhaustive paper of Mr. Curling, published in the *forty-third volume* of the *Medico-Chirurgical Transactions*. The following are the lecturer's general deductions in respect to the treatment of imperforate anus:—

"In all cases, with some rare exceptions, whether of imperforate anus, obstructed rectum, or misplaced anus, an exploratory operation in the normal anal position is perfectly justifiable, and it may be attempted with the fair hope that, in nearly half of such cases, primary success will be secured. Such exploratory procedure, however, to be successful, must be conducted with great caution; the puncture or incision being made always in an upward and backward direction towards the sacrum.

"If these measures fail, or if, from some peculiarity in the case, they appear useless and unjustifiable, the intestine is to be opened in the groin: the lumbar or Callisen's operation being quite inapplicable. In the inguinal operation, the right groin appears to possess advantages over the left; as the intestine is found with more certainty, and the benefits to be expected from the operation are equally great.

"The treatment of these cases does not terminate with the success of the primary operation—constant dilatation of the artificial anus is a necessity to preserve life."

In the second lecture we meet with some excellent remarks on injuries of the head in childhood. After pointing out the important fact that a child can bear blows and falls upon the skull with most surprising impunity—the anatomical structure of the bony centres in the child being such that they invariably receive the first impression of the blow or fall, and their membranous margins or fontanelles taking up the impulse, retard and stop the force of the onward vibrations; also, the brain in childhood is not, therefore, as a rule, so materially shaken by a slight injury as, in surgical language, to become the subject of a concussion—we are warned by the lecturer that, nevertheless, if concussion be experienced, the symptoms denoting cerebral irritation are generally well-marked and severe. When, also, once originated, the disposition to excessive reaction, or to inflammatory complications, is very great. Hence, the necessity of preserving absolute rest in even the slightest injury of the skull, even when no symptom of

brain-mischief exists. Besides the tendency of the brain in early life to take on diseased action, from the softness and want of consistency of its texture, it is, also, more liable than the brain in the adult to become the subject of ecchymoses from slight causes, and to this fact we are to attribute the frequency in childhood of cerebral symptoms from secondary inflammatory action.

Passing by the remarks of the lecturer on œdema of the larynx, from the swallowing of a boiling fluid, and on foreign bodies in the air passages, which, in respect to both subjects, though very concise, are pertinent, and especially practical; the same being true, also, in respect to the few words with which the subject of foreign bodies in the nostril is dismissed, we come to the important question, What, if any, are the points of difference to be noticed between the surgical affections of the chest during childhood, and those which occur in the adult? The lecturer is disposed to believe that the most important difference consists in the fact that, in early life, injuries to the thorax are more liable to be followed by laceration of the lung tissue, without the occurrence of any fracture or displacement of the ribs. This result he attributes to the greater elasticity of the thoracic walls in the child, and the greater ease with which the lung structure may be lacerated.

In treating of *navus*, the lecturer very properly remarks that, unless it be so situated as to be an eyesore or an inconvenience, or it evinces an evident tendency to rapid increase, there is no necessity for surgical interference. The *navus* will, to a certainty, after a time, cease to grow, and, in many instances, begin to waste away, and even finally to disappear.

In cases of diffused *navus*, the lecturer expresses his partiality for the treatment by setons, which he prefers to that by injections. He states that it has proved of great value in his hands. If the *navus* be large, several thick setons may be passed through the centre of the growth, but, in general, one or two will suffice. These will excite sufficient inflammatory action to close the enlarged capillaries, and to cause their subsequent and permanent contraction.

*Chronic enlargement, hypertrophy, of the tonsils* is more frequently met with in children than in adults. The lecturer pronounces it a disease essentially of debility, and to be treated by tonics, of which quinia and iodide of iron are undoubtedly the best. When the tonsils become very large, indurated, and pale, impeding deglutition and respiration, they should be excised. The lecturer has never seen any good result from the local application of nitrate of silver, iodine, etc., and has sometimes thought that it did harm.

In respect to *polypus of the rectum*, an affection much more frequent during early childhood than is generally suspected, the lecturer remarks, that in all cases of hemorrhage from the bowels in children, its existence is to be suspected, and a careful examination made. *Polypus recti* are generally met with in patients under ten years of age. In some cases the hemorrhage from the bowels is constant, the polypus will then be, in general, found just within, or perhaps protruding from the sphincter. In other cases, the hemorrhage will be only occasional, and to no great extent, accompanying or following, mostly, the act of defecation, though it may occur at other times. In examining children in whom the existence of rectal polypus is suspected, some care is required in order that the presence of the polypus may be detected. The best plan is to sweep the finger, passed well into the rectum, completely round the walls of the bowel. By a careless examination, unless the polypus is very large, it is almost sure to be overlooked. When detected, its removal is the only correct practice. In a large proportion of cases this may readily be done by simply hooking the finger over the pedicle and breaking it off. No hemorrhage or other evil consequences need be apprehended. In other cases, as when the polypus is high up or its pedicle thick and firm, it must be dragged down by means of forceps, or a wire noose, and then ligatured. After the growth is removed, a cure may confidently be predicted, provided the surgeon has satisfied himself that a second polypus does not exist.

We pass over the remaining subjects, briefly noticed in the second lecture, and direct attention to the remarks in the first section of lecture third, which is devoted to a consideration of the surgical affections of the osseous system in children, on *inflammatory disease of the shafts of the long bones*, which unfor-

unately is very common in early life; the inflammatory process commencing, as we believe, in the greater number of instances in the periosteum. Unless when resulting from external injury, the disease will be met with most frequently in the cachectic and so-called strumous subjects. It is generally slow in progress, and terminates usually in the death of the affected bone. There is often a very decided want of definiteness in the symptoms, which is apt to mislead parents, and render them dilatory in seeking professional advice.

In some cases the only external manifestation of the disease is an apparent gradual enlargement of the bone, while, externally, the surrounding soft parts are pale, but otherwise natural. It is only, perhaps, after the lapse of many months that any decided signs of mischief appear externally. If, however, the disease be not checked, death of the bone will take place, followed by inflammation and suppuration of the soft parts, ending in the formation of sinuses and a cloaca communicating with the diseased bone. The constitutional symptoms vary in intensity in different cases. In the majority they are very mild; little else than a dull aching over the inflamed part being complained of; a marked difference may be detected in the temperature of the part, the integument over the diseased bone feeling much hotter than in the neighbourhood. Firm pressure over the bone will, in all probability, cause increased suffering. The bone will generally be found enlarged, its external surface being smooth and uniform. At a later period, when the soft parts have become implicated and the bone necrosed, the local symptoms are too well marked to demand notice.

It is rare, the lecturer remarks, in cases of idiopathic osteitis, for a single bone alone to be affected. The symmetrical bones generally become, sooner or later, involved, and sometimes nearly all the long bones, showing the constitutional character of the disease. The disease, in children, does not invade the epiphyses.

The leading indication in the cure of the osteitis of childhood, is to improve the patient's general health by good living, good air, and tonics. As a tonic the syrup of the iodide of iron is pointed out as a good article in these cases. The inflamed limb must be kept raised and at rest. Warm fomentations afford much relief in the early stages. The lecturer has never seen any benefit result from the local application of iodine sufficient to compensate for the irritation and pain it occasions. Diseased bone should only be removed when it has become completely separated from its matrix. Too early attempts to interfere are only followed by harm, and should therefore be avoided. Amputation of a limb in cases of osteitis is rarely if ever required.

The lecturer describes very briefly a disease peculiar to childhood, namely, *inflammation of the soft, highly vascular, pulpy layer interposed between the shafts of the long bones and their epiphyses*. He thinks that a large proportion of the cases of acute suppuration about the joints in children have their origin in this layer, as is proved by the frequent exfoliation of some portion of the surface of bone in contact with it. If the inflammation involve the whole connective tissue of the bone, a general exfoliation of the upper portion of the shaft may result, or there may take place some arrest in the growth and development of the bone.

The disease is generally acute; it is manifested by morbid swelling at the affected part, attended by great pain and constitutional disturbance. An abscess next forms, which may rapidly encompass the joint and upper part of the limb. When the abscess has opened and discharged its contents, convalescence may result, or more frequently, a portion of bone, varying in size, will come away, and the parts heal kindly. In the majority of cases the disease appears at the shoulder-joint; it may occur, however, in any other articulation. The epiphysis itself is not often involved, the pulpy layer being more intimately connected with the shaft of the bone, the growth of which is effected through it, the epiphysis having an independent vitality and vascular supply.

The lecturer dismisses in a few words, under the denomination of "*green stick fracture*," that peculiar form of fracture to which infants are liable, in which the bone is fissured vertically into fibres, but not separated transversely. No credit is given to Dr. John Rhea Barton, of Philadelphia, who was the first to direct attention to this form of fracture, and point out its true character.

In treating of the diseases of the joints in children, the lecturer very truly remarks that there is scarcely any amount of mischief to the articulations which in early life is not remediable by natural processes, although it may be with ankylosis; the only exception, perhaps, is when any necrosed bone is present to keep up the irritation, and thus interfere with the process of cure. The chronic inflammatory affections of the articulations are essentially diseases of debility, occurring in children who are naturally frail, or who have been brought into a cachectic condition by an attack of fever or other exhausting disease. Let the general health of the patients be established, and the local affection will certainly improve also. The surgeon must, therefore, first of all improve the general condition of the child by hygienic means, good food, good air, suitable exercise, bathing, etc., aided by such tonic remedies as appear best adapted to each case; without this all local treatment will be futile. Specific remedies, as mercury, etc., may, according to the lecturer, be of service in some few instances; but such instances are few and far apart. In respect to local treatment in all joint affections, the diseased joint must be kept at perfect rest by means of an appropriate splint, which leaves the joint open for inspection, while the pain in the part is soothed by warm fomentations. Counter-irritation in children is hardly ever required, and must be employed with great care and caution. When only the effects of disease remain, firm, equal, and steady pressure will be found of decided advantage. The pressure may be applied by a proper application of strapping. There are few things which have a greater influence in causing the absorption of inflammatory deposit, and of thus restoring the parts to their normal condition. Very few cases of joint disease, occurring in children, require operative interference; as a rule, such interference is not only unnecessary, but mischievous. When, however, the bones are extensively involved, and have become necrotic, suppuration being kept up, and reparation prevented by the presence of dead bone; by the removal of this we insure a more complete and speedy recovery. It is in such cases alone that any operation is called for by local considerations. In certain cases, however, the general health of the child may fall under the continued local irritation, and his life be imperilled unless the latter be removed by an operation.

We have now presented an analysis, not of the entire contents of the volume before us, but of, perhaps, the more important of them. We have read the entire work with both pleasure and profit. The chief fault we have to find with the author, is the very brief manner in which most of the subjects embraced in his lectures are treated. What he has done, he has done well; we only wish that he had taken the time to fill up and perfect the very able outline he has given. The several cases interspersed throughout the lectures have been well chosen, and are admirably adapted to illustrate the author's teachings.

D. F. C.

---

ART. XXII.—*Lectures on Medical Education, or on the Proper Method of Studying Medicine.* By SAMUEL CHEW, M. D., Professor of the Practice and Principles of Medicine, etc., in the University of Maryland. 12mo. pp. 152. Philadelphia: Lindsay & Blakiston, 1864.

THE term "medical education" is most commonly used in a restricted sense, to express the study of the elementary branches of medicine and of its collateral sciences; in other words, the pursuit of that preliminary knowledge the acquisition of which is essential to a successful entrance upon the proper study of medicine as a science and of its practice as an art. If the term medical education is not used in a sense quite so restricted as this in the lectures before us, yet it is only in its limitation to the studies to be pursued preparatory to an entrance upon the career of a medical practitioner that it is considered. And thus applied, the subject of medical education is discussed by Dr. Chew skillfully and profitably. No one who proposes to enter upon the study of medicine, or who has already entered upon it, can fail to be benefited by the practical remarks



of the lecturer, while by the adoption of the various judicious hints and councils with which the lectures abound, the medical novitiate will find his career facilitated and the desired goal more readily and certainly secured.

The leading subjects discussed in the lectures of Dr. Chew, are the talents necessary for the successful study and pursuit of medicine; the means for the acquisition of medical knowledge—reading, lectures, clinical instruction and conversation. These several topics are examined with great skill, while the conclusions at which the lecturer arrives are marked by sound sense; the absolute necessity of the strictest industry, even with the most ample means and the best arranged method, in the acquisition of every species of knowledge, being fully recognized.

The fifth and concluding lecture is devoted to the subject of medical schools, their advantages and defects. We copy from it the concluding paragraphs.

"The student should be on his guard against attaching undue importance to schools, and should understand that the character and quality of his medical education, whether good or bad, will depend not entirely nor chiefly upon the teachers by whom he has been usefully instructed, or by whom he has been neglected or misled. What the schools, even the best schools, can do for their pupils is trivial and insignificant in comparison with what the pupils can do for themselves, with what they must do for themselves, if they wish to acquire knowledge, ability, and fitness for their profession.

"I mean in thus speaking no disparagement to the schools; for I think highly of their value and ability. They are, no doubt, useful to many of their pupils. But they help only those who co-operate with them, and labour to help themselves. To such as cannot or will not assist themselves, no effectual assistance can be given by teachers, or by any other extraneous agents. The most important service that a medical school can afford its pupils, is to furnish them with the means and opportunity for the study of anatomy, and the means and opportunity for the study of diseases in the wards of an hospital. Other modes of assistance may be useful, but these are indispensable; and if these are supplied, the student will seek in vain for any valid excuse for an insufficient medical education.

"With opportunity for the study of anatomy, and of clinical medicine, and with the abundant supply of useful books on medical science which is now everywhere at hand, if the student continue in ignorance, it may be doubted whether any combination of external circumstances could have endowed him with the requisite qualifications for his profession. The deficiencies of his education will probably be found to depend upon causes nearer to himself than any negligence or incapacity of his teachers, and they would have been the same had he sat at the feet and listened to the teachings of the wisest Gamaliels of the present or any former age."

"In any of our schools, even in the worst, the student who will be faithful to his duty and interest, and will exert himself with energy and diligence, may obtain useful assistance and preparation for the successful prosecution of that part of his education, infinitely the most important of all, which he is to bestow upon himself and which consists in the intelligent observation and study of the facts which will be continually presenting themselves to his notice as long as he continues engaged in the practice of his profession. In any of our schools, even in the best, the student who inertly and passively depends upon his teachers, and hopes to learn science by proxy, and to become a physician without thought, effort, or labour, will be fatally disappointed, and will inevitably and utterly fail. This truth is so evident, that it seems almost idle to assert it; and yet, it is so often overlooked by students that a teacher cannot, without culpable neglect, omit to recall it to their attention. '*Non est ad astra, mollis e terris via.*' There is no royal road to Heaven, or to Geometry, or to Medical Science; and the schools have no power to construct such a road for their pupils. If for any reason, good or bad, whether honourable ambition, 'that last infirmity of noble minds' or the pure love of knowledge for its own sake, or the pure love of knowledge for the sake of the power to do good, which its possession bestows; if for any of these, or for any other motive, you wish to be wise in the science

and art of your profession, remember that for this, or any other excellence or eminence in life, you must consent to pay the appointed price, and that price is labour, your own labour, and not the labour of your teachers." D. F. C.

ART. XXIII.—*The Nervous and Vascular Connection Between the Mother and Fœtus in Utero.* By JOHN O'REILLY, M. D., F. R. C. S. I. *Trubi ovarii.* 8vo. pp. 76. New York, 1864.

THIS is a curious and interesting little treatise; and, like all the productions of Dr. O'Reilly, is replete with learning and original thought. Even where we cannot coincide with the correctness of the author's premises or the validity of his conclusions, we have to admire the plausibility of his views and the ingenuity with which he attempts to sustain and enforce them.

The question as to the nature and extent of the connection which exists between the fœtus in utero and its mother, is one, the solution of which has for a long period occupied the attention of physiologists, and has given rise to numerous hypotheses, all of which, after enjoying a brief period of popularity, have been, one after the other, rejected as untenable.

In the work before us it is maintained that between mother and fœtus there is both a nervous and a vascular connection. That branches of organic nerves accompany the minutest ramifications of the maternal vessels in the placenta and of those also of the fœtus, and that these two sets of nervous branches inosculate in the placental lobule, thus accomplishing the nervous connection; while the vascular connection between the mother and fœtus is effected, as between all of the tissues and organs of the body, by the interposition of capillary vessels: into those of the placenta terminate the uterine arteries of the mother, and the hypogastric arteries of the fœtus, and from them take their rise the uterine sinuses and the umbilical vein of the fœtus. These positions Dr. O'Reilly attempts to sustain, as well from the absolute necessity of the existence of a nervous and vascular connection between mother and fœtus, as from a variety of facts adduced, which he believes explicable only by the admission of such connection.

According to Dr. O'Reilly, the brain is composed of *hollow nerve fibres*, and the nerves, of *hollow nerve tubules*, which fibres and tubules communicate with each other. By the gray substance of the brain and of the spinal cord, which consists of organic glands, is secreted "a volatile or phosphoric agent," whose office is the stimulation of the nerve fibres of the brain and spinal cord and the tubules of the nerves, and which by passing into the nerve fibres of the brain rouses the mind to action, and passing onwards through the tubules of the nerves render the operations of the mind coextensive with the terminations of the nerves. Impressions made upon the animal, or cerebro-spinal nervous system, are communicated and made to extend to the organic or vital nervous system, by the inosculature of the nerves of the two systems with each other. Life being exclusively located, according to Dr. O'Reilly, in the ganglionic nervous centres, and in the ramifications of the nerves of the organic, or ganglionic nervous system, hence, as without the presence of organic nerves there could be no life, it is evident, therefore, that wherever there is life, organic nerves must necessarily exist, even although we cannot demonstrate their existence to the eye.

All this appears, at first sight, to be clear and conclusive—the only satisfactory explanation of the manner in which nervous influence is transmitted, from the central points of production of nerve power, to every part of the animal organism, and yet, when we come to consider it more nearly, we find it to be all a mere hypothesis based upon no possible show of evidence and opposed by numerous serious and incontrovertible difficulties.

To explain and illustrate the uses of the placenta, Dr. O'Reilly compares its structure and functions with those of the liver. Thus he points to the four sets

of vessels in the placenta as analogous to the four sets of vessels in the liver, in their distinction and functions. Both organs purify the blood; the number of vessels in each are the same. The blood of the hepatic artery is distributed to the liver, and the branches of the hepatic artery terminate in capillaries in the liver. The hepatic artery is surrounded by a retina of nerves, which can be traced on its coats as far as the transverse fissure of the liver. The vena porta carries to the liver the impure blood from the chylipoietic viscera; divides into branches which terminate in the liver. The trunk of the vena porta is surrounded by a retina of nerves which can be traced on its coats as far as the transverse fissure of the liver. The hepatic veins commence in capillaries and carry the blood, brought to the liver by the vena porta and hepatic artery, to the ascending vena cava. It is evident, therefore, that a union of the blood of the hepatic artery and vena porta takes place in the liver. The gall-ducts commence in capillaries, and carry the bile to the hepatic duct.

Now, as to the analogy which exists between the liver and placenta. The uterine arteries carry the blood from the mother to the placenta, they are surrounded by a retina of organic nerves, and terminate in capillaries in the placenta. The hypogastric arteries carry the blood from the fœtus to the placenta, and terminate in capillaries. The umbilical vein commences in capillaries in the placenta, and carries the purified blood to the fœtus. As the fœtus requires nutriment for its growth, it is evident that the umbilical vein must contain not only the blood furnished by the hypogastric arteries, but also some of the blood furnished by the mother—namely, blood as well from the uterine as from the foetal hypogastric arteries, in the same manner that the hepatic vein contains blood derived from two different sources.

"It is evident that as pure blood is required to be united with impure blood in the liver, for the purification of the blood in that organ; so, in like manner, pure blood is required for the purification of impure blood in the placenta, and for the removal of carbonaceous matter. The uterine veins carry back the impure blood to the uterine sinuses, containing the impurities of the foetal blood in the same manner that the gall-ducts carry the bile to the gall-bladder. The bile is secreted by the combined operations of the organic glands of the liver. The nerves are prolonged on the coats of the branches and capillaries of the hepatic artery, and the branches and capillaries of the vena porta, and form glands in the acini of the liver, where they must inosculate, inasmuch as it is by the union of the blood of the vena porta and hepatic artery that the blood is furnished to the hepatic veins.

"The branches of the vena porta accompany those of the hepatic artery in the structure of the liver. The uterine arteries pass from the uterine to the foetal surface of the placenta, and then subdivide into branches. The hypogastric arteries, also, on arriving at the foetal surface of the placenta subdivide into branches and capillaries.

"The blood is purified in the placenta by the combined operation of the organic glands in the placental globule. The nerves that surround the branches of the hypogastric arteries extend along the capillaries and terminate in organic glands. The nerves which surround the uterine arteries, are, also, prolonged in the branches and capillary terminations of the latter—terminating in glands which inosculate with the organic glands at the termination of the capillary hypogastric arteries. The purification of the foetal blood is due to the operation of the organic nerves derived from fœtus and mother. Through the capillaries of the umbilical vein the pure blood is conveyed to the fœtus, while through the uterine veins the impure blood is carried back to the uterine sinuses."

In the earlier months of gestation the fœtus of the human subject is supported by the absorption through the lymphatics of the chorion of the sanguinolent fluid secreted by the mucous membrane of the uterus. But in the latter months, inosculatation takes place between the uterine and hypogastric arteries, and also between the organic nerves which surround those respective sets of arteries, thus establishing both a vascular and nervous connection between the mother and fœtus.

We have presented our readers with a general sketch of the views inculcated by Dr. O'Reilly in respect to the nature of the connection which exists between

mother and foetus, and the manner in which that connection is effected through the placenta. The entire subject, as presented in the work before us, is well deserving of a close and candid study. In the views advanced by the author there is not a little semblance of truth. They are plausible, to say the least of them, and while they explain sufficiently well important points in the physiology of foetal life they run counter to no well established anatomical fact or physiological law.

That any shock imparted to the nervous system of the mother may affect injuriously the foetus, we believe to be a truth well established, but that the nervous connection which exists between the mother and foetus can, under any circumstance, become the medium by which the development of the latter can be so modified as to bring it in conformity with certain objects that have happened to strike forcibly the mind of the mother or to daguerreotype upon the skin of the foetus forms transmitted to it from the optic nerve of the mother we are not prepared to admit, inasmuch as we have met with no fact which gives to such a supposition even the remotest semblance of truth.

D. F. C.

---

ART. XXIV.—*An Introduction to Practical Chemistry, including Analysis.*

By JOHN E. BOWMAN, late Professor of Practical Chemistry in King's College, London. Edited by CHARLES L. BLOXAM. Third American from the fourth English edition. 12mo. pp. 333. Blanchard & Lea, 1864.

THE above work, originally intended to supply a deficiency in elementary practical instruction, has, by the successive editions, become so well known to our chemical public, that any notice beyond the fact of the appearance of a new and revised form would be unnecessary, were it not that in consequence of the decease of the talented author the supervision of the work has devolved upon his successor in the London School of Practical Chemistry, Charles L. Bloxam. This gentleman is favourably known to us as the author of a very acceptable work on inorganic chemistry, and in the present case has fully sustained his previous impression, by the judicious alterations and additions he has made to the *Practical Chemistry* of Professor Bowman.

The most extensive and important alterations to be noticed are those made in part third, chapter one, treating of the qualitative analysis of substances of unknown composition. The directions for the mode in which the student should proceed in his examination is laid down in accordance with strict method and in compliance with the lessons of experience, examining and noting carefully first the physical then the chemical characters. In the form of typography adopted in this edition the eye is at once caught by the circumstances to be specially noted and the conclusions to be drawn therefrom; the former being indicated by broad faced type, and the latter by italics. The whole of this section has been rewritten and rearranged, still commencing with the more simple cases in which one metallic and one non-metallic element is present, and thence passing to the more complicated examples afforded by the higher branches of analysis. The alterations and additions in other parts are of a minor character, but may be considered as affording additional means and information to the student, and as facilitating his researches in special subjects. Thus, in the preparation of gases a convenient method is given for drying; in the purification of reagents the most usual impurities are noticed, and directions given for their amendment; new methods of investigation are introduced, as Fresenius' and Babo's, for arsenic; the volumetric estimation of sesqui-compounds of iron by solution of permanganate of potassa, and the proper means of detecting the principal organic alkalies. In the examples given for the student, to enable himself to acquire confidence and improvement by practice, there have been added some which are well calculated to effect this object, by the care and attention involved in the discrimination of the import of the results, and consequently of great practical utility.

The size of the work has been enlarged by these alterations nearly fifty pages over the former edition, and evinces the usual neatness and correctness of previous publications, with the exception of a single instance (easily corrected) of malposition of an illustration, Fig. 19, which has been turned a quarter of a circle from its proper position.

R. B.

**ART. XXV.—***On Human Entozoa: Comprising the Description of the Different Species of Worms found in the Intestines and other Parts of the Human Body, and the Pathology and Treatment of the various Affections produced by their Presence.* By WM. ABBOTTS SMITH, M. D. 8vo. pp. 251. London, 1863.

THE above is the title of a work recently from the London press which, though not so elaborate a treatise as the excellent manual of Küchenmeister, translated and published by the Sydenham Society, yet is perhaps better adapted for the general practitioner, so far as it goes. Dr. Smith treats in his volume of the human entozoa alone, while the work of Küchenmeister includes an account of the epizoa and the vegetable parasites. Dr. S. gives a concise and accurate account of our knowledge to the present day, together with the best known method of treatment, and his work may be perused with advantage by the physician and medical student.

J. L.

**ART. XXVI.—***British Pharmacopœia, published under the direction of the General Council of Medical Education and Registration of the United Kingdom pursuant to the Medical Act, 1858.* London: Printed for the General Medical Council, 1864. 8vo. pp. 444.

WE have neither the leisure nor the space, at this time, to examine into the merits of this work; but it has been so long and anxiously looked for that it appears incumbent upon us to at least announce its appearance. "To supersede three Pharmacopœias, each of them long held in great repute—to reconcile the varying usages, in pharmacy and prescriptions, of the people of three countries hitherto in these respects separate and independent—to consult the prepossessions of three important professional bodies, which have ruled long and ably over this branch of medicine, to represent accurately, yet with caution, the advancement made in chemistry and pharmacy during the thirteen years which have elapsed since the last edition of any of the Pharmacopœias of the Colleges of Physicians was published," the council state "has been no light task."

The work consists of two parts and an appendix. The first part consists of the *materia medica*; the second of the preparations and compounds; and the appendix of articles which are employed for the chemical processes in the second part, but are not themselves used in medical practice, and of preparations solely intended for the chemical examination of articles contained in the first and second parts.

Five years were occupied in the preparation of this work, and the cost of it is said to have exceeded thirty thousand dollars. Whether or not the result justifies this expenditure of time and money we may at some future period consider; but in the mean time we may state that the work does not seem to have been received with general favor in Great Britain. In an editorial in the *Lancet* (Feb. 27, 1864) it is stated that "although the Pharmacopœia bears ample evidence of the great ability, large therapeutic information, and great chemical skill which distinguish its able authors, yet it is disfigured by practical mistakes." And Prof. Redwood, in a lecture delivered before the members of the Pharmaceu-

tical Society, stated, according to the journal just quoted, that no worse punishment could be desired for the authors of the *Pharmacopœia* than to be shut up in a laboratory until they had made the monohydrated glacial acetic acid which they order by the process which they prescribe; that in the directions for preparing hydrochloric acid they had forgotten the application of heat; that in ordering monohydrated sulphuric acid they had ordered that which could not be well prepared by the process given, nor used in pharmacy if prepared; that the new carbonate of potash of the *Pharmacopœia* was as difficult to prepare by the directions given as it was difficult to keep when made; that citrate of iron could not be scaled in the way described; that the collodion was a mess; and that the spirit of nitric ether was directed to be obtained from a substance practically unattainable by the process given or by any existing process."

---

**BIBLIOGRAPHICAL RECORD.**—Several works have recently appeared, which want of space and the short period that has elapsed since their reception prevent our noticing particularly at present, but which on account of their importance we deem it our duty to call attention to at once.

First of these is a new edition of the very able treatise on *Human Physiology*, by Prof. John C. Dalton, Jr., M. D. This edition, the third, is revised and enlarged, and the subjects all posted up to the day. We shall notice it more particularly in our next number.

Next we would ask attention to a new edition, the third, of a *Treatise on Pharmacy*, by Edward Parrish. This edition is very considerably enlarged and the official preparations are in conformity with the new edition of our *National Pharmacopœia*.

We have been very remiss in not noticing, before this, "*Physiological Memoirs* by Wm. A. Hammond, M. D.," the scientific and able Surgeon General U. S. A. Though most of them originally appeared in this Journal and are, it is to be hoped, familiar to our readers, we ought to have announced their appearance in a collected form. These memoirs have secured for their author, reputation abroad as well as at home. They have been most favourably reviewed in the last number of the *British Foreign Medico-Chirurgical Review*. The reviewer states, "as a whole, they impress us favourably with the candour, accuracy, and ability of the writer. He enters on his inquiries in the true spirit of the experimental physiologist, and duly impressed with their importance." Again he says:—

"In expressing the high sense we entertain of the work, we must not omit to point out the goodness of its style, so clear and simple, and so appropriate to the matter, nor, though briefly given, the information he affords of what has been accomplished by others in the same field of research."

Outlines of the Chief Camp Diseases of the United States Armies as observed during the Present War, by Jos. Janvier Woodward, M. D., Ass. Surg. U. S. A. It was expected that this interesting volume would be reviewed in the present number, but unavoidable circumstances prevented the completion of the review in time, and it has been laid over until our next issue. In the mean time we invite attention to the volume which contains much of importance.

# QUARTERLY SUMMARY

## OF THE

### IMPROVEMENTS AND DISCOVERIES

#### IN THE

### MEDICAL SCIENCES.

---

#### ANATOMY AND PHYSIOLOGY.

1. *The Colourless Corpuscles of the Blood.*—Dr. LIONEL BEALE presented to the Microscopical Society of London, Jan. 13th, 1864, a paper on these corpuscles, which he prefaced with a few remarks, stating that as the paper was too long to be read *in extenso* he would endeavour to give the pith of it. He commenced by stating that the germinal or living matter, of which all nuclei, and in some cases what had been termed cell-contents consist, always exhibited a tendency to assume the spherical form: that whatever shape this germinal or living matter was made to take by pressure of external matter, if placed in a fluid about its own density, it always becomes spherical. The white corpuscle of the blood, like other forms of living matter, if carefully watched, may be frequently detected forming projections or outgrowths upon its surface, almost like the amoeba. The moving power, Dr. Beale thinks, resides in the most minute particles of this living or germinal matter, and that although contained granules may be observed in active motion, the movement communicated to them by the minute spherical particles of living matter does not depend upon the mere molecular movements of the granules themselves. Dr. Beale believed the little highly refractive particles which give to the white blood corpuscle its granular appearance, to be dead formed material, resembling fibrin—for whereas the living germinal matter could be coloured by a solution of carmine, the granules could not, and this he looks upon as a test for the germinal matter. In a clot of blood, stellate cracks are often seen between the surrounding coloured corpuscles converging towards a colourless corpuscle. He believes their appearance to result from the white corpuscle absorbing nutrient material from the *liquor sanguinis*, the cracks or fissures being the channels through which the streams of nutrient matter flowed. In inflammation the increase of white corpuscles in the capillaries is enormous, and Dr. Beale believes they have the power by budding of increasing in number, even after the death of the animal. In favour of this view he instanced the case of a clot of blood, which, if examined immediately after death, would be found to contain a certain number of colourless corpuscles, but when examined a few hours later a greater number might be observed. He also stated that the periosteum of the fang of an inflamed tooth was a very favourable position for observing the formation of white corpuscles in young vessels. Dr. Beale believes that the white corpuscles multiply in the circulation, especially in such positions where it is slow and sluggish—for instance, in the spleen. He thinks that they are formed from the germinal matter of the walls of the vessel, as well as by subdivision, and the formation of buds on the part of the white corpuscles. Dr. Beale then entered upon the "Exudation" and "Cell" theories, as applied to morbid products in inflammation. He thought that minute living particles passed through the stretched walls of

distended capillary vessels, and that these living particles grew and increased in the exudation after its escape. Hence he could accept neither theory, since the "exudation" contained solid living particles, but these living particles could not be considered "cells," for they had not the structure, nor were they produced in the manner which those who accept the cell theory believe cells to result. He then stated, that besides the white and red corpuscles of the blood, the *liquor sanguinis* contains an enormous number of the extremely minute particles just referred to, and he hazarded the opinion that it was such living active particles that we were to regard as the active animal "ferments" which give rise by the so-called "catalysis" to contagious and infectious diseases, as smallpox. These germs might pass in a living state from one person to another, and multiply. There could be no more interesting field for investigation than this. He then went on to state that every living particle is derived from some pre-existing living or germinal matter; that the formed material on the other hand was dead matter; and that in it chemical and physical changes occurred, but not the so-called *vital actions*; the latter being confined to the germinal matter alone. The living germinal matter of the white corpuscles in the blood, if allowed to die very slowly, under certain conditions became resolved into the hæmato-crystalline of which the red blood corpuscles were composed. This, as is well known, readily assumes the crystalline form. If the death of the living matter occurred more quickly, the result was fibrin, so that the formation of fibrin was a vital process—in fact, that the germinal matter in dying became fibrin. Dr. Beale then introduced the theories of Professor Lister on the coagulation of the blood; and although disagreeing in his views, yet spoke most highly of his labours, and regretted that English reviewers, who were enabled to give lengthy and elaborate criticisms upon the works of foreign observers, passed over with a few words of approval or dissent the labours of their fellow-countrymen. Dr. Beale thought that there was more real conscientious physiological work done in Great Britain than many supposed.—*Dublin Med. Press*, Feb. 3, 1864, from the *Electrician*.

2. *Variety of the Muscles of the Axis, Atlas, and Occipital Bone.*—Dr. JOHN STRUTHERS showed to the Medico-Chirurgical Society of Edinburgh a dissection in which the muscles which normally arise from the spine of the axis were shifted down to the spine of the third vertebra. The spine of the axis wanted its usual bifurcation and great size. The rectus capitis posticus major muscle arose entirely at the spine of the third vertebra. The recti minores were normal between the atlas and occiput. The interspinales muscles were absent between the atlas and axis, but present between the axis and third vertebra. The obliquus inferior muscle arose in its great bulk at the spine of the third vertebra, and this at first appeared to be the entire muscle; but a portion, about one-fourth the size of the lower, was then found coming normally from the spine of the axis, lying deeply on the lamina, and joining the large portion above its middle. The obliquus superior was normal. At first the attachment of the rectus major and obliquus inferior at the third vertebra seemed to be directly to a massive spinous process; but, on dissection, it became evident that, while the spine of the third vertebra was larger and more largely bifid than usual, the muscles were fixed to it indirectly, that they were attached to a thin flat oval sesamoid-like bone, resembling a rather small-sized almond. This epispinous bone was attached to the corresponding tubercle of the third spine by a strong ligament, and by ligamentous fibres to its fellow of the other side. The interspinales muscles in the space between the third vertebra and axis were large, and seemed also to be attached below entirely to the epispinous bones; but there was a deeper and smaller pair of interspinales, which were attached directly to the spine of the third vertebra. The muscles which normally pass from below to the spine of the axis, were attached to the third spine through the epispinous bones instead of reaching up to the axis.

This was undoubtedly a very singular variety. Looking to the absence, as usual, of interspinales in the space between the first and second vertebrae, and their presence in the space between the second and third, while the recti majores were at the same time attached below the latter space; and looking also



to the fact that the obliquus inferior retains a small head of attachment to the spine of the axis, we must draw the conclusion that the epispinous bones represent the two tubercles which are usually developed from the spinous process of the axis, for the attachment of the rectus major and obliquus inferior muscles above, and, below, for the semispinalis and other muscles. But it remains a question how these tubercles came in this body to be separate, and to be shifted down to the spine of the third vertebra, carrying their muscles with them.—*Edinburgh Med. Jour.*, May, 1863.

## MATERIA MEDICA AND PHARMACY.

3. *Quinia as a Local Antiseptic.*—Dr. R. GIESELER has been led to adopt the use of quinia as a local antiseptic. From experiments which he made, he found that the preservative property exerted on fresh meat by pure quinia (not the sulphate only) was greater than that of many other substances including even cinchona. He therefore determined to apply quinia in surgical cases; and his first case was one of extensive carbuncular inflammation in a man aged 25. The whole of the lower half of the left calf, including the upper third of the tendo-Achillis, was in a gangrenous state, which threatened to extend round the limb. At the upper part, the soft structures were destroyed to the depth of about an inch; and the tendinous portions of the gastrocnemius were being thrown off in shreds, with ichorous discharge. The fibres of the tendo-Achillis, where diseased, appeared as if macerated; and the edges of the whole tendon were undermined. The leg was much enlarged; its skin had a bluish red colour; and the soft parts were indurated. The diseased parts exhaled a most offensive smell, filling the small room in which the patient lay. He kept the knee flexed, so that the leg rested on the thigh; and it was scarcely possible to bring the limb even to a right angle. The patient suffered continuous pain in the whole leg, and especially in the foot; he had loss of appetite, fever, and profuse sweats. The disease had commenced four weeks previously as a very tender black spot on the skin, and had been treated, by the practitioner called to the case, by warm applications, and, after the separation of the slough, by ointment of nitrate of silver, and subsequently by oil of turpentine and by myrrh ointment. The gangrene, however, spread in depth and in circumference. Dr. Gieseler first endeavoured to improve the patient's health by tonics, especially cinchona; and, as applications to the limb, he employed effusions and bandages soaked in a strong decoction of poppy-heads with opium. As no improvement was produced by the continuance of this treatment during eight days, he determined, as a last resource before performing amputation, to try the effect of the local application of quinia. Accordingly, a solution of this substance was applied in compresses over the entire gangrenous parts, the whole being covered in with warm poultices. During the first week, the internal remedies were continued. In the course of the first day, the pain abated, and the patient passed a tolerably quiet night. A change in the appearance of the parts could not naturally be at once expected; but the separation of the dead parts took place very gradually. At the end of three weeks, the separation was complete at the upper part, and healthy granulation was commencing; the diseased portions of the tendo-Achillis, were not thrown off until a later period. The process of cicatrization went on favourably, and was complete three months after the patient first came under Dr. Gieseler's care. The man ultimately recovered the perfect use of his leg. Dr. Gieseler says that on several occasions, for the sake of experiment, he omitted the quinia, and used warm applications only; the result always was, that the pain was renewed.

The next case related is one of noma, occurring in a child three years old. Dr. Gieseler was called to this patient on account of an ulcer at the right corner of the mouth: this was, however, found to be connected with gangrenous disease of the cheek, which was much infiltrated, and, although the skin was un-

affected, gave on examination signs of being destroyed in its entire thickness. When Dr. Gieseler attempted to raise the lip carefully, for the purpose of examining its inner surface, laceration of it near its middle and of the right ala nasi took place without hemorrhage, and showed these parts, as well as the external surface of the alveolar border of the upper jaw, to have been changed into a gangrenous mass, having an offensive smell. The thickly infiltrated gangrenous parts were removed by incisions made from the lacerations already described upwards to the infraorbital process, and thence obliquely downwards and to the right. No hemorrhage took place. To the exposed dirty gray anterior surface of the upper-jaw, in which no trace of organization was apparent, Dr. Gieseler applied a sponge soaked in solution of sulphate of quinia, over which he laid some wadding, and secured the whole with a bandage. The right nostril was kept open by means of a piece of sponge, also soaked in quinia solution. On the next day, a dark brown border, a line in width, had formed at the inner and upper part (near the canine fossa) where it was found the sponge had not rested; but there was no extension of the gangrene elsewhere. The applications were renewed every few hours, the parts being carefully cleansed by affusion on each occasion. Healthy granulations appeared at the edges of the wound on the second day. Even at this time, when the process of separation first commenced at the centre of the exposed surface, the offensive smell had ceased; and neither then, nor subsequently, did the child appear depressed, but took its food readily and played as usual, although confined to bed. No internal remedies were given except an occasional mild aperient, when indicated. The child was first seen on October 9th; and on November 11th the process of cicatrization was complete, leaving the parts in so satisfactory a state that a trifling plastic operation alone was required to remedy the defect that remained.

Dr. Gieseler has used in some cases of bed-sores, an ointment of quinia (the sulphate being first dissolved in a few drops of water and then mixed with lard); and has found a quinia gargle useful in some cases of diphtheritic throat-ulcer. In young children, the remedy must be applied by means of a camel's hair brush; and the use of the same means of application is also indicated for other parts, such as the cornea and uterus.

Quinia is also useful as a local application in the after-treatment of plastic operations, which sometimes fail through death of the transplanted parts. It is, however, perhaps advisable to scarify these, so as to allow of the action of the quinia. The following case is given: On June 27th, Dr. Gieseler saw a little girl aged 6 years, who had undergone a remarkable injury of the left hand in attempting to swing herself to a loaded cart. The nature of the injury was such that the integument was stripped from the entire palm of the hand, from the wrist to the fingers; and the flap remained connected at the finger-joints. The flap was replaced; and, to keep it properly extended, sutures were applied; the limb was laid in a lukewarm water-bath, and was subsequently dressed with solution of quinia. On July 4th, the corners of the flap—making altogether about one-third—had become separated, but without any gangrenous odour. The remaining part spontaneously divided into three strips. On July 17th, these had become firmly adherent; and the hand was placed in the extended position on a splint. At the end of this month the wound was entirely healed; there was but slight contraction of the cicatrix, and the child recovered the perfect use of her hand.

In caries and necrosis also, Dr. Gieseler, after performing the necessary operations, applies quinia locally, and believes it to be useful. This, however, he says, is open to further inquiry, as the successful result in many cases may be dependent on the constitution of the patient. It is suggested, also, that the local application of quinia may be useful in the sloughing of malignant tumours. Dr. Gieseler, however, has no experience to bring forward on this point.—*British Med. Journ.*, Jan. 23, 1864, from *Archiv für Klin. Chirurg.*, Bd. IV. heft 3.

4. *Carbolic Acid as an Antiseptic and as a Local Application in Favus.*—Dr. JAMES WATSON has experimented with this article in the Royal Infirmary, Edinburgh.

He tried carbolic acid as a disinfectant lotion, he states, "in two cases, in the

surgical wards. In the first case, the patient, a young girl about 13 years of age, was suffering from a sloughing ulcer extending from the knee to the ankle. There was a large amount of discharge of the most fetid character. On the application of the carbolic acid as a lotion, one part of acid to forty of water, the very disagreeable fetor was completely destroyed. Nothing could be more satisfactory than the complete manner in which the disgusting odour was dissipated. The lotion also acted as a stimulant to the part, which to a certain extent took on a healthy action, but in consequence of the amount of discharge exhausting the already very weak constitution of the girl, amputation was deemed her only chance of recovery, and this was accordingly performed.

"The other instance in which I had carbolic acid applied as a lotion was in the case of a young man who had amputation performed at the middle of the thigh for malignant disease. Very soon after the operation, sloughing set in, accompanied with a fetid discharge. On the application of the lotion, the fetor, as in the first case, was most completely destroyed, the discharge lessened, the sloughs separated, and the parts beneath looked healthy. The lotion continued to be used for several days with the best results as far as its disinfectant and antiseptic qualities were concerned, but unfortunately the patient died, never having thoroughly recovered from the shock of the operation."

Dr. W. also, in conjunction with Dr. Smart, made a number of experiments on the urine to test the antiseptic property of carbolic acid.

These experiments, he states, "conclusively show that carbolic acid is a decided antiseptic, that a very small quantity prevents for several weeks the odour of decomposition, that a slightly increased quantity diminishes the amount of deposit, and that a very little more entirely prevents any recognizable change in the composition of the urine from taking place."

Dr. Watson next draws attention to a case of favus treated with carbolic acid in the clinical wards.

"Peter Russel, æt. 14. On admission, head was found completely covered with favus crust, and on microscopic examination the parasite—*achorion Schönleinii*—peculiar to this disease was discovered. The boy's head was shaved and then poulticed for two days. A solution of carbolic acid in glycerine (in the proportion of one part of the acid to twenty-five parts of glycerine) was then ordered to be applied to his head, morning and evening, and to be continued daily.

"Before the application of this lotion the entire scalp was of a crimson colour, but under this treatment the colour of the scalp became gradually fainter, and at the end of five weeks distinct tracts of scalp quite free from redness were found, and the remaining parts were much paler in colour. The hair is now growing vigorously, and over the whole surface of the scalp not a trace of the favus crust can be detected.

"The boy's general health is much improved since coming into the hospital.

"So satisfactory was the result obtained in the last reported case considered, that the same treatment is now being pursued in another case of favus, with this difference, that in this instance the lotion is stronger, being composed of one part of acid to fifteen of glycerine.

"The young man, Peter Ward, æt. 17, has had the disease for nine years. On admission his head was covered with favus crust. The head having been shaved and poulticed, the above lotion was applied as in the former case, morning and evening. After being treated in this way for fourteen days the scalp was seen to be much less red and the hair growing vigorously. At the roots of the hair there are still small circumscribed patches of crimson scalp, but no trace of crust is to be found over the entire head."—*Ed. Med. Journ.*, Jan., 1864.

5. *Veratrum Viride*.—Dr. JAMES WATSON was induced by the representations of Dr. Cutter to experiment with this article. A few of his experiments were made with the tincture prepared by Dr. C., the others with that made by Duncan and Flockhart. He states that his "experience distinctly denies *Veratrum viride* to have sedative properties. It can depress, as I have shown, most thoroughly; but that it can, under ordinary circumstances, be of use as an arterial sedative, I unhesitatingly deny. Dr. Fordyce Baker, of New York,

maintains that it acts specifically as an arterial sedative, without depressing the vital powers. This statement I must distinctly contradict; and on the other hand maintain, that it is by depressing the vital powers, and that in the most marked and painful manner, that influence on the circulation is obtained. That a drug so potent in inflicting pain, and so inert till extreme nausea is induced, should ever find a place in British medicine as an arterial sedative, is exceedingly improbable. The drug may have virtues we know not of; but this, after many careful experiments, we do know, it has no arterial sedative quality. And while we have such a sedative as aconite to rely on, it will be most strange if, even for a time, practitioners should be so unwise as to neglect it on the bare assertion that there is a better."—*Ed. Med. Journ.*, Jan. 1864.

6. *Tinctura Boleti Laricis Canadensis*.—This is a new remedy highly recommended by Dr. Grant as a remedy for rheumatism. Dr. JAMES WATSON states (*Ed. Med. Journ.*, January, 1864), that he has used it in one case of rheumatic fever, without any effect.

7. *Sarracenia Purpurea*.—Dr. JAMES WATSON has experimented in eight cases of smallpox, in the Royal Infirmary, with this newly vaunted Canadian remedy for smallpox, and found it absolutely inert.—*Ed. Med. Journ.*, Jan. 1864.

8. *Turpentine as a Styptic*.—Dr. WILKS believes that turpentine does not hold the place among styptics which its merits deserve. He has long been in the habit of giving it, and often found it arrest hæmoptysis when other ordinary remedies had failed: he has also seen it very beneficial in one or two cases of purpura hemorrhagica.

9. *Physiological Properties of Nitrite of Amyle*.—Dr. B. W. RICHARDSON read a paper on this subject before Sub-section D, of the British Association. He first described the mode of manufacture and the chemical properties of the nitrite, and then passed on to the physiological action. The first remarkable fact was that the nitrite when inhaled produced an immediate action on the heart, increasing the action of the organ more powerfully than any other known agent. As the action of the heart rises, the surface of the skin becomes red, and the face assumes a bright crimson colour. A little of the nitrite was here placed on a piece of bibulous paper, and passed round to show the effect on the face, and the effect was most remarkable, causing the faces of the persons who smelt the vapour to become instantaneously flushed. Carried to an excessive degree, the nitrite excites the breathing, and produces a breathlessness like that caused by sharp running or rowing. On animals, when the agent is given in large quantities, death is produced. The author at first thought that the nitrite, like chloroform, would cause anæsthesia; but experiments had shown that this view was not borne out. Animals would, it is true, lose consciousness; but when such a stage was reached, great dangers resulted, owing to the slowness by which the poison was removed from the body after its absorption. On the blood the nitrite produces darkness of colour, but it does not materially interfere with coagulation in the body. In the lungs it excites congestion, and in the brain slight congestion. It causes no severe spasm and no sickness. After entering into certain other details, Dr. Richardson proceeded to say that the most remarkable effect produced by the nitrite was that in the lower animals—frogs, for instance—it led to suspended animation, which could be maintained for so long as nine days with perfect after-recovery. This fact was of curious historical interest. The ancients, especially Theophrastus (Paracelsus), had stated that there was a poison which, when taken one day would not take effect until some future day. This statement, long considered as a myth, had within the present year been shown to be true by Dr. Letheby, who had discovered a poison which really produced this phenomenon. In like manner the ancients had an idea that there were medicines which would for a time suspend life. The proceeding of Friar Lawrence in giving the distilled liquor to Juliet, was based on this old fiction, or shall we not say fact? The next point discussed

by Dr. Richardson had reference to the mode of action of this poison. Were the effects produced through the blood, or by the nerves direct? The speaker said that he had been led to the conclusion, from previous experiments, that all poisons were brought into action through the blood; but this very commonly accepted theory did not explain the immediate and powerful action which follows the exhibition of the minutest dose of the nitrite of amyle. He thought, therefore, that the action was immediately on the nervous system, and that such action, transferred to the filaments of nerves surrounding the arteries, paralyzed the vaso nerves, on which the heart immediately injected the vessels causing the peculiar redness of the skin and the other phenomenon that had been narrated. Dr. Richardson, in conclusion, said that nitrite of amyle, like to chloroform twenty years ago, was only to be considered a physiological curiosity. It might by its action suggest the cause of trance, and of what was called hysterical unconsciousness, and it might explain the mode by which certain analogous substances produced their effects on the organism. It had been suggested—naturally suggested—that in fainting, as from loss of blood or from fear, the inhalation of the nitrite of amyle might be of service. He (the author) did not, however, at the present moment recommend its use in medicine, because of the intensity of its action. This last point was at the present time under his inquiry, and he would report further results at the next meeting of the Association.—*Med. Times and Gaz.*, Sept. 26, 1863.

10. *Liquor Bismuthi*.—MR. CHAS. R. C. TICHBOURNE read before the Pharmaceutical Society in December last the following account of a new preparation of bismuth, which is getting much in vogue in Great Britain, and is highly spoken of by many practitioners:—

“Under the name of *Liq. Bismuthi* there has been introduced to the notice of the faculty a preparation, which purports to possess great advantage over the ordinary basic nitrate. The desirable points in this preparation are—first, its solubility; second, its slight taste; and third, its alkalinity. It has also the peculiarity of not being precipitable by water.

I felt the desirability of such a mode of exhibiting bismuth, and therefore made an analysis of the solution for my own information; and as it possesses certain phases of interest, I now take this opportunity of placing it before the members of the Pharmaceutical Society.

A qualitative analysis elicited the following: The solution contained bismuth, nitric acid, and ammonia; not a trace of nitric acid could be detected in the solution. *Liq. bismuthi* is therefore probably a solution of a basic salt, having a composition analogous to  $3\text{MOCi} + \text{MO}$ ; one of the bases,  $\text{MO}$ , being replaced by  $\text{BiO}_3$ ; it is made from the recently precipitated and well-washed oxide. From the peculiarity of having to deal with an alkaline bismuthic solution, direct precipitation with sulphide of ammonium was employed to determine the amount of bismuth present; this gave, on washing and drying, 0.327 grammes of  $\text{BiS}_3$  in the fluid half-ounce, which represents 1.114 grains of the teroxide as being present in the drachm. Now, although the circular which accompanies the *liq. bismuthi* states that 3j is equivalent to a full dose (fifteen to twenty grains) of the insoluble trisnitrate, I do not think such can be the case. The idea evidently is that the metal, when in the soluble form, is much more active than the ordinary insoluble modification, and there can be no doubt that it is so to a certain extent; but I should consider three grains to the drachm as the minimum dose; even more than this quantity may be easily introduced into such a solution as the above. The following is probably the mode pursued in making this solution: 130 grains of metallic bismuth are dissolved in a sufficient quantity of nitric acid, and this solution of ternitrate of bismuth is then precipitated with ammonia, and the resulting hydrated oxide well washed; 480 grains of citric acid are then exactly neutralized with ammonia, and the moist oxide is gradually added to the boiling solution of citrate of ammonia. The oxide is slowly but perfectly taken up. Ammonia is slowly evolved during the boiling (probably from the decomposition of the citrate of ammonia *per se*), but the solution becomes slightly acid, and remains so until the completion of the process. The solution is then neutralized with ammonia, and the whole is made to measure one pint. This

solution will contain three grains of  $\text{BiO}_3$ , to the 3j. It is more elegantly made by dissolving the citrate of bismuth in citrate of ammonia.<sup>1</sup>

Tartaric acid has also a similar action upon bismuth.

There seems to be a limit to the solubility of chemically pure citrate of bismuth; but the solubility is wonderfully increased by the presence of mineral acids. This is no doubt due to the greater solubility of the salts formed by the latter acids in citrate of ammonia.

The reactions of this bismuthic solution are as follows:—

Ammonia and carbonate of ammonia give no precipitate. Potash and soda, or the carbonates of these alkalis, give precipitates insoluble in an excess of the precipitant. Nitric, sulphuric, and hydrochloric acids give precipitates soluble in an excess of the respective acids, and reprecipitable on neutralization with ammonia. These precipitates are also soluble on the further addition of ammonia. Water gives no precipitate. Sulphide of ammonium throws down the whole of the bismuth as sulphide.

As the reactions of citric and tartaric acids are at present little known, it is my intention to investigate the matter further, particularly with a view to its analytical bearing; but in the meantime I place before you the results of my investigation of the liq. bismuthi.

Mr. Schacht (of Clifton) said that although the author of the paper had not thought fit to mention his name in connection with the liquor bismuthi examined, there could be no doubt, from the quotation made from the circular, that the preparation the meeting had just heard so freely discussed was that made by himself. Assuming this to be the case, he could state that the author had well performed his task in submitting it to analysis. The preparation sold as liquor bismuthi (Schacht), consisted of bismuth oxide, citric acid, and ammonia, and the quantity of oxide of bismuth present was one grain in the drachm. This, however, had been published in the *Lancet* several months ago (?). A fact so easy of investigation he had never attempted to keep secret, but on the contrary he had told its composition to every medical man with whom he had conversed on the subject. He had adopted the name "Liquor Bismuthi (Schacht)," partly because having been fortunate several years ago in discovering this elegant method of holding bismuth in permanent solution, he was anxious to reap some measure of reward in the credit which would attach to so distinct an improvement as he believed this preparation to be; and partly also because as the article can only exist in the form of solution, it was convenient that the profession should be invited to prescribe a medicine of one definite strength. In answer to the author's suggestion that it should be made three times as strong as he (Mr. Schacht) had been accustomed to make it, he would observe that the quantity indicated as a dose—one drachm—was easy both to remember and to dispense, and he had abundance of evidence to prove that in such doses it was efficient, in many cases succeeding where full doses of from five to twenty grains of the trisnitrate had failed. He claimed the credit, such as it was, of having been the first to prepare and introduce to the profession a permanently fluid form of bismuth, and as his preparation had been a good deal employed during the last five or six years it would be a great pity to alter its strength."—*Dublin Med. Press*, Jan. 20, 1864, from *Pharm. Journ.*

## MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

11. *Trichiniasis in Germany*.—In the original department of this Number will be found an interesting account, by a correspondent, of the recently dis-

<sup>1</sup> Citrate of bismuth is a very insoluble salt, got by the double decomposition of citrate of potash or soda, and ternitrate of bismuth. The citrate, as made in this manner, is extremely soluble in ammonia or a solution of citrate of ammonia.

covered disease produced by the presence of *Trichinæ* in the human system, The *British Medical Journal* for Jan. 16, 1864, contains some additional details, which we transfer to our pages, as we are confident they will interest our readers.

"A few months ago, there was a festive celebration at Hettstädt, a small country town near the Hartz Mountains, in Germany. Upwards of one hundred persons sat down to an excellent dinner, and, having enjoyed themselves *more majorum*, separated, and went to their homes.

"Of these one hundred and three persons, mostly men in the prime of life, eighty-three are now in their graves; the majority of the twenty survivors linger with a fearful malady; and a few only walk apparently unscathed among the living, but in hourly fear of an outbreak of the disease which has carried away such numbers of their fellow-diners.

"They had all eaten of a poison at that festive board, the virulence of which far surpasses the reported effects of *aqua tophana*, or of the more tangible agents described in toxicological text-books. It was not a poison dug out of the earth, extracted from plants, or prepared in the laboratory of the chemist. It was not a poison administered by design or negligence. But it was a poison unknown to all concerned; and was eaten with the meat in which it was contained, and of which it formed a living constituent.

"When the festival at Hettstädt had been finally determined upon, and the dinner had been ordered at the hotel, the keeper of the tavern arranged his bill-of-fare. The introduction of the third course, it was settled, should consist, as usual in those parts of the country, of *Rostewurst und Gemuse*. The *Rostewurst* was, therefore, ordered at the butcher's the necessary number of days beforehand, in order to allow of its being properly smoked. The butcher, on his part, went expressly to a neighbouring proprietor, and bought one of two pigs from the steward, who had been commissioned with the transaction by his master. It appears, however, that the steward, unfortunately, sold the pig which the master had not intended to sell, as he did not deem it sufficiently fat, or well-conditioned. Thus the wrong pig was sold, carried on a barrow to the butcher, killed and worked up into sausages. The sausages were duly smoked and delivered at the hotel. There they were fried and served to the guests at the dinner-table.

"On the day after the festival, several persons who had participated in the dinner were attacked with irritation of the intestines, loss of appetite, great prostration, and fever. The number of persons attacked rapidly increased; and great alarm was excited in the first instance by the apprehension of an impending epidemic of typhus fever or continued fever, with which the symptoms observed showed great similarity. But when, in some of the cases treated by the same physician, the features of the illness began to indicate at first acute peritonitis, then pneumonia of a circumscribed character, next paralysis of the intercostal muscles and the muscles in front of the neck, the hypothesis of septic fever, though sustained in other cases, had to be abandoned with respect to these particular cases. Some unknown poison was now assumed to be at the bottom of the outbreak; and an active inquiry into all the circumstances of the dinner was instituted. Every article of food and material was subjected to a most rigid examination, without any result in the first instance. But when the symptoms in some of the cases invaded the muscles of the leg, particularly the calves of some of the sufferers, the description which Zenker had given of a case of fatal trichinous disease was remembered. The remnants of sausage, and of pork employed in its manufacture, were examined with the microscope, and found to be literally swarming with encapsuled trichinæ. From the suffering muscles of several of the victims small pieces were excised, and under the microscope found charged with embryonic trichinæ in all stages of development. It could not be doubted any longer, that as many of the one hundred and three as had partaken of *Rostewurst* had been infested with trichinous disease by eating of trichinous pork, the parasites of which had, at least in part, escaped the effects of smoking and frying.

"This awful catastrophe awakened sympathy and fear throughout the whole of Germany. Most of the leading physicians were consulted in the interest of the sufferers, and some visited the neighbourhood where most of the afflicted

patients remained. But none could bring relief or cure. With an obstinacy unsurpassed by any other infectious or parasitic disease, trichiniasis carried its victims to the grave. Many anthelmintics were arrayed to destroy, if not the worms already in the flesh, at least those yet remaining in the intestinal canal. Picric acid was employed until its use seemed as dangerous as the disease; benzole, which had promised well in experiments upon animals, was tried, but was unavailing. As case after case died off, and the dissection of each proved the parasites to have been quite unaffected by the agents employed, the conviction was impressed upon every mind that a man afflicted with flesh-worm is doomed to die the slow death of exhaustion from nervous irritation, fever, and loss of muscular power, in systems essential to existence.

"But medical science had only just unravelled a mystery; and if it could not save the victims, it was determined, at least, to turn the occasion to the next best account. The cases were, therefore, observed with care, and chronicled with skill. All the multifarious features of the parasitic disease were registered in such a manner, that there can hereafter be no difficulty in the diagnosis of this disorder. A valuable diagnostic feature was repeatedly observed—namely, the appearance of the flesh-worm under the thin mucous membrane on the lower side of the tongue. The natural history of trichina in man was found to be the same as that in animals.

"All observations led to the conviction that the trichina encapsuled in the flesh is in the condition of puberty. Brought into the stomach, the calcareous capsule is digested with the flesh, and the trichina is set free. It probably feeds upon the walls of the intestines themselves; for the irritation of the intestines begins before the bringing forth of young trichinæ has taken place. Copulation is immediately effected; and within a few hours, or a short portion of days, from sixty to eighty live embryos leave the female, and begin their own career of destruction.

"This consists, in the first instance, in an attempt to pierce the walls of the intestinal canal. Great inflammation of the entire surface ensues, ending not rarely in death of the villous or mucous membrane, or in the formation of masses of pus on its surface. Sometimes there are bloody stools. But these severe symptoms only ensue when much trichinous meat has been eaten. When less has been consumed, pain and uneasiness in the abdomen are produced, accompanied, however, in all instances, by wasting fever and prostration. The embryos actually pierce the intestines, and are found free in the effusion, sometimes serous, sometimes purulent, which is always poured out into the abdominal cavity. Thence they again proceed towards the periphery of the body, pierce the peritoneum, causing great irritation, and sometimes peritonitis, to the extent of gluing the intestines together to a coherent mass. They next proceed to the muscles nearest to the abdomen; arrived at the elementary muscular fibres, which, under the microscope, appear as long cylinders with many transverse striæ, they pierce the membranes, enter the fibres, eat and destroy their striated contents, consume a great part of the granular detritus, moving up and down in the fibres until grown to the size necessary for passing into the quiescent state. They then roll up in spiral or other irregular windings, the bags of the muscular fibres collapse, and only where the trichinæ lie a calcareous matter is deposited, perhaps by the trichinæ themselves, which hardens into perfect capsules round the parasites. A muscular fibre may harbour one or several parasites; but every fibre invaded by a single parasite loses its character entirely, and becomes a bag of detritus from one end to the other.

"If it be remembered that one ounce of meat filled with trichinæ may form the stock from which, in a few days, three millions of worms may be bred; and that these worms will destroy in the course of a few weeks not less than two millions of striated muscular fibres—an idea of the extent of destruction produced by these parasites can be formed. We are not in a position to say to what proportion of the fifty or sixty pounds of muscle required for the performances of the human body these two millions of elementary fibres actually amount. In the muscles nearest to the abdomen, the destruction is sometimes so complete, that not a fibre free from parasites can be found. This amounts to complete paralysis. But death is not always produced by the paralysis; it is mostly



the result of paralysis, peritonitis, and irritative fever combined. No case is known in which trichiniasis, after having declared itself, became arrested. All persons affected have either died, or are in such a state of prostration that their death is very probable.

"Most educated people in Germany have, in consequence of the Hettstädt tragedy, adopted the law of Moses, and avoid pork in any form. To some of the large pig-breeders in Westphalia, who keep as many as two thousand pigs, the sinking of the price of pork has been a ruinous—at the least, a serious—loss. In the dining-rooms of the hotels in the neighbourhood of Hettstädt, notices are hung up announcing that pork will not be served in any form in these establishments. To counteract this panic, the farmers' club of the Hettstädt district gave a dinner at which no other meat but pork was eaten. But it has had no appreciable effect. The raw ham and sausages of Germany are doomed to extinction. The smoked and fried sausages must necessarily be avoided.

\* \* \*

"In the South of Germany, some people now say that the Hungarian pigs are most frequently affected with trichinæ. This rumour, like the famous pork dinner of the farmers' club, may, however, have been set up with the intention of quieting apprehension about the native pigs. We have already mentioned the accident which befell the crew of a merchant vessel. They shipped a pig at Valparaiso, and killed it a few days before their arrival at Hamburg. Most of the sailors ate of the pork in one form or another. Several were affected with trichinæ and died. Of those whose fate could be inquired into, one only seems to have escaped the parasites. Another outbreak in Saxony has carried away twelve persons. A fourth wholesale poisoning by trichinæ is just reported from Offenbach, the Birmingham of Hesse-Darmstadt. Of upwards of twenty persons infected, three had already died when our correspondent's letter left. Numerous sporadic cases of fever, and epidemics of inscrutable peculiarity, but referred to an anomalous type of fever, are now claimed by medical authors, and with much show of reason, to have been outbreaks of trichiniasis, or flesh-worm disease. Several German physicians experimentalized with a view of finding a cure for this terrible disorder. Professor Eckhardt at Giessen, we are told, has obtained permission to try the disease and supposed remedies upon a murderer under sentence of death. We have not been told whether his reward in case of success is to be a commutation of his capital sentence; but should hope this to be the case. The experiment, even if it should not have the romantic character indicated, will probably teach some curious details of the life of these parasites. Almost everywhere, the commonest rules of cleanliness are disregarded in the rearing of pigs. Yet pigs are naturally clean animals, avoiding, like dogs and cats, all contact with ordure. Though they burrow in the earth, and in summer wallow in the mud, they abhor the heaps of excrements mixed with straw in and upon which they are frequently kept. A due regard to cleanliness will prevent trichinæ in the pig. In wild boars, of which many are eaten in the country round the Hartz Mountains, trichina has never been found. Neither has it been met with in sheep, oxen, or horses. Beef is the safest of all descriptions of meat, as no parasites have ever been discovered in it. They have also never been found in the blood, brain, or heart, of those animals in whose striated muscles they love to reside."

12. *Hæmaturia at the Cape of Good Hope due to the presence of Parasites.*—Dr. JOHN HARLEY read before the Royal Medical and Chirurgical Society (Jan. 26, 1864) a very interesting account of some cases of hæmaturia due to the presence of parasites belonging to the genus *Distomum* or *Gynæcophorus*.

In the beginning of October last, a gentleman, resident in the Cape, consulted the author about a slight hæmaturia which he had had for some years. After micturition a little blood, never exceeding a teaspoonful, or some dark "veins," appeared with the last half ounce of urine. The urine itself was never bloody. Sometimes the "veins" would block up the urethra, and cause obstruction for a few minutes. He had an occasional twinge of smart pain in the loins. These were all the symptoms that ever appeared in connection with the urinary apparatus. He said great numbers of people of both sexes were affected in pre-

cisely the same way in certain parts of the Cape. While awaiting a sample of his urine, Dr. Harley made inquiries amongst his Cape friends and acquaintances; and, as the result corroborated his patient's statements, he was now satisfied of the existence of endemic hæmaturia in Nitenhage and Port Elizabeth, and it remained for him to ascertain the cause. In the various samples of urine sent to him by his patient, he invariably detected the eggs of an entozoon; and in one specimen he had the good fortune to discover the perfect embryo after its escape from the eggshell, under the form of a minute, ciliated animalcula. From its anatomical characters and developmental changes he was led to refer the parasite to the *Trematode* class of worms, and to the family *Distomum*. Of the five species of this genus which inhabit man, it had no relation with three. *Distomum heterophyes* presented some points of resemblance, viz.: in the size and conformation of the alimentary canal, if he (Dr. Harley) might be allowed to compare it with an organ he met with in one sample of his own, and which he supposed to be the intestinal canal of the adult parasite. But the animal which it seemed to most nearly resemble, in the outward form of the eggs as well as in the symptoms of the disease it produces, was the *Distomum hæmatobium*. This parasite, according to Bilharz and Griesinger, was very common in Egypt, and inhabited all parts of the urinary apparatus. But since the parts he had described differed in several respects from the corresponding parts of the *hæmatobium*, and since, from want of recorded information respecting the corresponding parts of *D. heterophyes*, he could not compare them with these, he was obliged to comprehend them under a new species, which he would call *D. capense*. Having finished his observations of this case, he was strongly persuaded that the hæmaturia of the Cape was due to the parasite, the early stage of whose development he had been able to observe; but still, as its presence in a single case might be nothing more than a coincidence, he felt that more extended observations were needed to prove that this was the constant cause of the local disease in question. With singular good fortune he had the pleasure of an introduction to Mr. Dunsterville, Surgeon to the Port Elizabeth Infirmary, and who, having practised for twenty-seven years in the Cape of Good Hope—which was one of the two places in which he (Dr. Harley) found the hæmaturia to be endemic—was quite familiar with the disease, the cause of which, however, from want of leisure and means of observation, had never been ascertained. Mr. Dunsterville's two sons, in common with most other young men, suffered from the disease, but considered themselves to be now free from it. At the author's request, Mr. Dunsterville kindly supplied him with samples of their urine, and he (Dr. Harley) was at once enabled to demonstrate to Mr. Dunsterville the existence of the characteristic eggs of the parasite in question in the secretion from both. Having thus demonstrated the existence of the same parasite in three individuals suffering or having suffered from the hæmaturia endemic in some parts of the Cape, Dr. Harley concluded that the animal was the constant cause of the disease.

Dr. COBBOLD remarked that no person who had previously familiarized himself with the appearances presented by the eggs of the various distomes could doubt for a moment that Dr. John Harley's illustrations represented the ova of the so-called *Distoma hæmatobium*. In short, the symptoms, pathological products, eggs, and embryos described by Dr. Harley, all tended to show that this hæmaturia of the Cape was identical with the well-known Egyptian malady. Dr. Harley's discovery was, however, a most important one in relation to the geographical distribution and prevalence of entozootic diseases; for the author had now demonstrated, in a most satisfactory and able manner, that the helminthiasis in question was not confined to Egypt, as had hitherto been supposed, but was more or less prevalent in Southern Africa and in the Mauritius. Speaking zoologically, this parasite was not a true distome, as it represented the type of a distinct genus, to which Diesing, of Vienna, gave the name of *Gynæcophorus*; Weinland, of Frankfort, had called *Schistosoma*; Moquin-Tandon had denominated *Thecosoma*; and himself had previously entitled *Bilharzia*, after the name of the original discoverer, Dr. Bilharz, of Cairo. He (Dr. Cobbold) had discovered this so-called *Distoma hæmatobium* in the portal blood of an African monkey (*Cercopithecus fuliginosus*) six months before Diesing had

communicated his paper to the Vienna Academy, and, therefore, he hoped Dr. Harley (in concert with Weinland and others) would retain the generic name *Bilharzia*, which had the priority. At all events, this was not a new species of fluke, and, therefore, the name *Distoma capense* could not stand. But Dr. Harley's discovery was none the less important on this account. It was quite clear to him (Dr. Cobbold) that our fellow men at the Cape, in the Mauritius, on the banks of the Nile—and also, if you please, our friends, the monkeys—obtained this parasite by swallowing the “intermediate bearers” of the *Bilharzia*. These “bearers” or “hosts” were small mollusks or aquatic animals, inhabiting the African rivers. They contained the higher larval states of this parasite, the larvæ being introduced into the human body by drinking the African waters unfiltered.—*Med. Times and Gaz.*, Feb. 6, 1864.

13. *Extensive Development of Cysticerci in the Human Body.*—Pierre Massot, aged 77, was admitted into the Hôtel-Dieu at Lyons in November, 1862, with pulmonary catarrh and general weakness. On February 9th, 1863, he broke the neck of the left thigh-bone, and was consequently removed into the surgical wards, under M. DELORE, where he gradually became weaker, and died on April 16th. M. Delore had noticed, during the man's life, a number of small tumours on the chest, along the arms, on the elbows, and in the armpits. The lower limbs were very cedematous, so that the presence of any tumours in this situation could not be ascertained. The swellings were subcutaneous, and were not adherent to the skin nor to subjacent parts. Some of these seemed to be united by fibro-cellular bands, as they were easily moved together. The skin over them was unaltered; they were of the size of haricot-beans, very hard, and presented no trace of fluctuation. It was thought that they were of fibro-plastic character.

Thirty-hours after the man's death, the tumours were examined by MM. Delore and Bertholus, and were recognized to be due to the presence of cysticerci. Several cysticerci were found in the subcutaneous tissue of the conjunctivæ. The muscles were pale and easily torn; all those of the trunk and limbs contained numerous cysticerci; in the diaphragm there was one nearly as large as an almond. It was estimated that the subcutaneous conjunctival tissue and the subaponeurotic and intermuscular tissue contained about 2,000 of these bodies. They occupied principally the points of insertion of the muscles; their longest diameter lay parallel with the fibres, which they separated without destroying them; they were also lodged in the intermuscular spaces. No cysticerci were contained in the bones. The head of the thigh-bone was broken outside the capsule, and the great trochanter was also detached. Union had not taken place. There were no cysticerci in the eyes; nor at the base of the tongue, where they are always present in measly pigs (up to the present time, only one case of cysticerci in the human tongue has been noticed; it is related by Rudolphi). The liver, spleen, and kidneys were quite healthy; the latter presented numerous cysts on their surface. The pancreas contained one cysticercus. The mesentery was literally crammed with them. The parotid glands contained several. Three or four were found in the sides of the larynx. There were sixteen on the surface and in the tissue of the lungs. One was placed superficially on the anterior wall of the heart. The intestines were carefully washed and examined; but no tæniæ nor worms of any kind were found. In the nervous centres, 111 cysticerci were found; viz., 22 in the membranes, 84 in the cerebrum, 4 in the cerebellum, and 1 in the medulla oblongata. None were present in the spinal cord. On the surface of the brain, a rather large number of cysticerci had formed a small cavity in the substance of the convolutions; others were seen through a thin layer of cerebral substance. The ventricles, choroid plexus, and optic thalami, contained a considerable number. The brain was soft and diffuent.

An examination of the parasites showed that the vesicles varied much in size, and that they contained scolices having a double range of hooklets varying from thirty to thirty-four in number.

Very little information could be obtained as to the antecedent history of Pierre Massot. As far as could be ascertained, he was a beggar, led a wandering life, and was frequently intoxicated. His food ordinarily consisted of bread,

cheese, and pork. In the part of the country where he lived, mealy pork is common; but no cases of *tæniæ* have been noticed there.

Cases where the muscles and organs have been generally occupied with cysticerci are very rare. M. Delore has met with only two such instances; one related by Werner, the other by Demarquay. In the latter case, most of the muscles contained cysticerci; but among the internal organs, the lungs alone. In a case of ununited fracture of the humerus, under the care of Dupuytren, where resection was performed, several hydatids were found in the fragments. The fracture was attributed to their presence, as the patient had broken his arm in throwing a stone with moderate force.—*British Medical Journal*, December 26, 1863, from *Gazette Méd. de Paris*, 3 Octobre, 1863.

14. *Epidemic Pleuro-Pneumonia in some Ships of the Mediterranean Fleet.*—Dr. BAYSON, Inspector-General of Hospitals and Fleets, R. N., read before the Epidemiological Society an account of this epidemic.

The disease was of a low, asthenic or typhoid type, accompanied with great congestion usually of the lower lobes of the lungs, and in many of the cases in the ship chiefly affected, the *St. Jean d'Acre*, with scorbutic symptoms, although the diet of the crew was in every respect as good as in the other vessels of the squadron. In the *Cressy*, too, there was an unusual prevalence of lung disease, often of an obscure and anomalous character, which was not easy to designate. The evidences of the pulmonary tissue being congested or even consolidated in different parts of the chest, associated with pleurisy or pleurodynia, and with such a cachectic condition of the system as might probably lead on to tubercular degeneration in chronic cases, were the most conspicuous features of the malady. Effusion into the chest was discovered in a few instances. Diarrhoeal and dysenteric attacks were common both in the early and late stage. The following table shows how very differently different ships of the squadron were affected with diseases of the lungs in the course of the year, and also with other diseases, the extent of whose prevalence is usually regarded as a fair test of the healthiness, or otherwise, of a ship's crew. Attention should be paid to the number of the crew in each vessel, to estimate aright the marked difference in respect of the number of cases under each head in the different ships. The reader can easily calculate the ratio of attacks to the crew for himself:—

	No. of Crew.	Cases of sickness in year.	Diseases of lungs, etc.	Diseases of bowels.	Fevers, continued and remittent.	Ulcers.
Marlborough	1145	937	129	64	10	75
Agamemnon	840	881	241	58	17	30
St. Jean d'Acre	815	1601	401	171	136	115
Cressy	720	1483	298	254	12	102

The deaths from disease in the *St. Jean d'Acre*, and in the *Cressy* were twice as numerous as in the *Marlborough*, notwithstanding the much smaller crews of the former vessels; and the number invalided from the first ship was fourfold as numerous. As to the chief cause of this enormous disproportion in the sickness and mortality, &c., in two ships of the same fleet and similarly exposed, it was clearly shown that this lay in the excessive overcrowding of the men at night in the *St. Jean d'Acre* on the lower deck, while in the *Marlborough* the men were more distributed on the different decks, and greater attention was paid to ventilation of the between decks. Only fourteen inches space was allowed to each hammock in the former ship; and so thoroughly was fresh, cool air excluded from the men while asleep, that the air above the hammocks was found to be from eight to ten degrees hotter than the air below the hammocks, and so offensively impure as to cause nausea to any one going down from the open air. With such a state of things, it is not wonderful that the health of the ship was so bad during the two years while on the station, that it was at last found necessary to send her to England to be paid off. Besides several features of resemblance in the symptoms of the pleuro-pneumonia in the *St. Jean d'Acre* and *Cressy* to the lung disease in cattle, it is to be noted that

there are good grounds for suspecting that the affection was communicated by the sick landed from the vessels to other patients in Malta Hospital.—*Med. Times and Gaz.*, Jan. 23, 1864.

15. *Pain in the Stomach following the Ingestion of Food, successfully treated by Manganese.*—Dr. ARTHUR LEARD observes that pain caused by food is a very common functional affection of the stomach, and it affects women more frequently than men. Its ordinary position is at a spot just below the ensiform cartilage, but it may be localized at other points over the region of the stomach. At times it is diffused over a considerable space. When it has continued some time, and especially if its seat is the spot first mentioned, the affected part feels sore on pressure, and this soreness may remain after cessation of pain. In many cases pain extends a good way upwards beneath the sternum, more rarely it is diffused downwards towards the umbilicus, or even below it. It frequently extends towards the right in the track of the duodenum, and is sometimes experienced in the cardiac region itself. In many cases pain shoots from the part locally affected as from a focus, in various directions through the thorax, frequently to the upper part of the back.

The perception of pain by different individuals is variable, which partly accounts for the varying descriptions of the present affection. By some patients it is described as a dull continuous pain, by others as of a tearing, gnawing, or scraping nature, or like that which might be caused by a tight ligature.

The pain usually comes on from a quarter of an hour to an hour after a meal, but in severe cases is induced by taking even a few morsels of food. Its duration is uncertain, but it usually lasts some hours. There appears to be always a short interval between the time of swallowing the food and the occurrence of pain. A valuable means of diagnosis between it and the pain of ulcer of the stomach, in which pain generally happens immediately on swallowing solid food, is thus afforded. But the intensity of pain affords no measure of the gravity of the disease. The pain of cancer or of other organic diseases of the stomach may be less severe than that which is purely of a functional nature. Flatulence with a sense of distension are experienced in some cases, while in others they are entirely absent. Constipation is not a prominent feature of the disease.

The pain and tenderness are seldom connected with gastritis, as their transient nature, as well as the accompanying symptoms, sufficiently prove. They are simply an expression of exalted sensibility of the mucous membrane of the stomach, which becomes intolerant of the natural contact with the food, or else of the gastric juice itself. The facts that the pain does not come on until the food has been some time in the stomach, and that albuminous food—that which requires gastric juice for its reduction—causes suffering, while starchy aliments cause it in a less degree, or not at all, support the idea that the gastric juice is its source. I have been led by several circumstances to the belief, that the epithelial coating of the gastric mucous membrane is imperfect; that it is either shed too rapidly, or, owing to its imperfect growth, is inadequate for the protection of the delicate surface which it covers. Thus, the state of the tongue whose surface is continuous with that of the stomach, is generally very characteristic of the disease. Owing to a denudation of its epithelial covering, its extremity is very red, and its irritable-looking papillæ stand prominently out. The effect of treatment also proves that inflammation is not concerned in the disease.

I have thought it necessary to describe in some detail the nature of the disease before bringing forward a new remedy for it, because there are other painful conditions of the stomach which are not benefited by the same means. Its successful use will, therefore, greatly depend on accuracy of diagnosis. The gastric pain caused by gout, generally connected with an excess of acid is not removed by the same treatment; the pain which attends organic disease of the stomach is little influenced by it, and the same may be said of the neuralgic pain which is especially apt to occur when the stomach is empty.

In the treatment of the disorder before us, direct sedatives seldom give more than temporary relief. Opium has the great disadvantage of inducing constipation. Prussic acid, with or without alkalies, so useful in some kinds of stomach

pain, is generally futile. But the nitrate of bismuth has long been in deserved repute; more recently it has been almost superseded by its carbonate. These preparations are also open to the objection that they induce constipation. Both these substances are but sparingly soluble in the fluids of the stomach, and it occurred to me that their beneficial action may be exerted in a mechanical manner. It seemed possible that the diffusion of an inert powder over the walls of the empty stomach might, as it were, blunt the over-sensitiveness of its mucous membrane. With this view I tried, in several cases, the effects of *silex* prepared by precipitation from its solution, a perfectly inert and insoluble powder. The results were most encouraging. Passing then to substances which combine mechanical with a special action, I tried in many cases the saccharated carbonate of iron with little success. A fair trial of the magnetic oxide of iron yielded no better results. All the substances mentioned were given in doses of from x to xx grains. In pursuance of the same inquiries the black oxide of manganese, freed from impurities, at length came under trial. Here the results have been unexpectedly satisfactory. After having used it in several hundred cases, both in hospital and private practice, and after an experience of some years, I do not hesitate to pronounce it a most valuable addition to our stomach remedies. It is certainly more efficacious in allaying the hyperæsthetic state of the mucous membrane than bismuth. This has been proved by alternately exhibiting each remedy for a week at a time in severe cases, and carefully noting the results. But, independently of this, manganese has one cardinal advantage—it does not constipate. Assuming them equal in other respects, this alone is enough to stamp its superiority over bismuth, in the use of which we are constantly obliged to tease the gastro-intestinal surface with irritating purgatives. Another advantage not to be overlooked, especially in hospital practice, is this—the purified oxide of manganese can be procured at one-sixth the price of the preparations of bismuth. I possess notes of a great number of cases treated by manganese which incontestably prove its efficacy. Space will not at present allow of these details, but the result of its trial in forty hospital out-patients, men and women, briefly stated, must suffice. The duration of the disease ranged from three weeks (the shortest) to several months and even years. The dose of the manganese was, in almost every instance, ten grains taken three times a day before meals. Alterations in diet could have had little influence in these cases.

After having taken manganese one week,

Pain was quite removed	in 12	} 28
Very much relieved	in 15	
Relieved	in 10	
Unrelieved	in 3	

40

After having taken manganese two weeks,

Pain was quite removed	in 4
Very much relieved	in 15
Not so well as first week	in 1
Patients did not attend	8—28

Some of these patients continued taking the medicine for several weeks, and although a few who ceased to attend may possibly have remained unrelieved, no instance of failure came to my knowledge.

I was particular in ascertaining the effect on the bowels, and in four cases it is noted that the medicine was thought by the patients to constipate, in three of these only slightly. More extended observations, however, convince me that it has no constipating effect. In one case, on the other hand, it was stated to have purged.

Manganese is also highly useful in pyrosis, generally removing first the watery discharge and afterwards the pain in a short time. In certain irritable states of the stomach it is also of much service. In one remarkable case, in which a woman had been affected with vomiting for many months, after the failure of bismuth, manganese was very successful in quieting the stomach.

The purified oxide of manganese may be given in doses of from five grains to half a drachm, according to the severity of the case. I tried the carbonate of

manganese in a few cases with good results as regards pain, but in doses of ten grains it is apt to induce nausea, or even vomiting. The sulphate given in solution also allays pain, but I found that even five grains is still more liable to disagree with the stomach. The ordinary black oxide of manganese is very impure, and therefore unfit for use. The purified manganese may be obtained from Messrs. Garden & Robbins, 372 Oxford Street, W. I shall feel indebted to any gentleman who may make a trial of the remedy, for a report of the results. —*Dublin Med. Press*, Jan. 20, from *Med. Circular*.

16. *Tincture of Larch in Chronic Bronchial Affections*.—Dr. HEADLAM BREKENHOW calls attention (*Med. Times and Gaz.*, Feb. 20, 1864) to the fact that there is a certain stage of chronic bronchitis, in which expectorants cease to be useful. "More or less copious expectoration, indeed, still continues," he remarks, "but the acute symptoms have subsided, and the secretion from the bronchial membrane may be regarded rather in the light of a passive flux than as the immediate result of irritation. In such cases, the object of the physician must, therefore, be rather to check than to encourage the continuance of the expectoration. In patients who have suffered from repeated attacks of bronchitis, this stage of the disease often persists for a lengthened period, and may even ultimately become the habitual condition of the patient. A somewhat analogous condition of the bronchial membrane is frequently met with in cases in which there has been no previous attack of acute or subacute bronchitis, but in which the ailment, having begun with a slight increase of bronchial secretion, has gradually merged into a chronic cough attended by expectoration. This latter form of bronchial affection is especially apt to occur in patients of gouty constitution, and also in persons exposed to breathe either the overdried atmosphere of artificially-warmed and ill-ventilated apartments, or air charged with mechanical, gaseous, or other irritants. In whichever of these forms the chronic flux from the bronchial membrane may present itself, its tendency, even in slight cases, is to impair the general health and vigour of the patient, and to render him more especially liable to suffer from catarrhal attacks, each repetition of which further aggravates, and tends to render permanent the bronchial affection. Various remedies have been in use for the treatment of this class of cases, especially balsamic medicines—such as balsam copaiba, ammoniacum, and compound tincture of benzoin. Of these, balsam of copaiba is undoubtedly the most efficacious; but its nauseous taste and smell, for the most part, forbid its employment. Moreover, in many of such cases, there is a feeble condition of the digestive powers in which these balsamic medicines are apt to disagree with the stomach, and a want of general tone and vigour, requiring the administration of tonics. I have now, during some five or six years, been using, with much success, the tincture of larch in the treatment of these forms of bronchial affection. The tincture is made from the inner bark of the larch tree, and its taste is much less unpleasant than that of any of the above-named remedies. I have rarely found it disorder the stomach, and it is capable of being given in combination with tonics, or any other remedies the case may require. I most frequently prescribe it, in hospital practice, in doses of from twenty to thirty minims, in a mixture consisting of tincture of gentian, nitro-muriatic acid, and water, with or without ipecacuanha wine, and either tincture of hyoscyamus or compound tincture of camphor, according to the more or less frequency and severity of the cough. When desirable, the mixture may be rendered more agreeable to the taste by the substitution of syrup of orange peel for tincture of gentian. Of the value of the tincture of larch as a remedy in the large class of cases above described, I entertain no doubt, having tested its efficacy very carefully, and having repeatedly found that patients improved greatly under its use when other medicines had failed. I have in a few cases tried an extract of larch bark, but have found it less decidedly useful than the tincture, which is also the most convenient form for administration. It will be inferred from the tenor of the foregoing observations, that tincture of larch will be found useful only in chronic forms of bronchial disease, attended by considerable expectoration. Its employment is contraindicated in acute bronchitis, or during the intercurrent catarrhal attacks, to which patients suffer

ing from chronic bronchitis of long standing are so liable. Its effect as a remedy is gradually to lessen the amount of expectoration, and with it the cough and dyspnoea, and at the same time to render patients much less subject to catarrhal attacks at particular seasons or changes of weather."

17. *The Simultaneous Employment of Perchloride of Iron and Ergot of Rye in Albuminuria.*—Dr. Socquet, in the first instance, and afterwards Dr. CHATIN, both physicians of the Hôtel Dieu, of Lyons, have employed the perchloride of iron and ergot of rye for the prevention of the loss of albumen in the urine, and the results they have obtained are deserving of notice. The cases observed were some men of bad constitutions, weakened by former unfavourable hygienic conditions, such as insufficient food, and dwelling in damp and badly-ventilated localities. The dropsy, in all the cases, at first confined to the face, had successively attacked the limbs and peritoneum. The urine was pale and inodorous, and contained large quantities of albumen, and in one case microscopic examination revealed the presence of the remains of renal epithelium. Immediately on their admission into the hospital these men were subjected to diaphoretics, alkaline diuretics, uva ursi, and digitalis, though without any good result; but at last they took the ergot of rye and perchloride of iron. These medicines were given in progressive doses, beginning with 20 drops of tincture of the perchloride and 50 centigrammes of ergot of rye. Every two or three days these doses were methodically increased, and carried successively to 30, 40, 50, 60, 70 drops of tincture of the perchloride, and to 75 centigrammes, 1 gramme (about 15 grains), and three grammes of the ergot. Under this treatment the albumen in the urine rapidly began to diminish; in ten days it disappeared completely, and in ten days afterwards the different dropsical effusions disappeared also. In one of the cases, the treatment having been suspended a little too soon, the albumen again appeared in the urine. In order to judge comparatively of the effects of the perchloride and the ergot, the perchloride was administered alone, when the albumen diminished; but this diminution, although rapid at first, was afterwards very slow. The ergot being added to the prescription accelerated the cure, and four days after its administration there was no more albumen in the urine. M. Perrond, in making some remarks on these cases, observes that the ergot and the perchloride of iron appear to have a beneficial effect on the albuminuria, but that their use constituted the treatment of a symptom rather than that of a disease, and that they are not therefore calculated to supersede the use of other measures intended to remove the original malady.—*Brit. and For. Med.-Chir. Rev.*, Jan. 1864.

18. *Treatment of Tendinous Rheumatism by the External Employment of Sulphur.*—Tendinous rheumatism, according to Dr. RENARD, differs from acute rheumatism by the absence of the general symptoms, and from the chronic by the presence of local inflammatory symptoms. Dr. Renard suffered from this complaint himself after an attack of acute rheumatism, for which he was copiously bled. The parts affected were the tendons of the hamstring muscles, and no improvement resulted after a long course of diaphoretics, camphor, terebinthinate, and other liniments, and the administration of the solanaceæ. At last Dr. Renard saw a passage in an English medical journal, stating that persons suffering from rheumatism in the legs had only to dust the inside of their stockings with sulphur. He immediately employed this simple remedy, the sulphur being the commercial flowers of brimstone, which contain some sulphurous acid. The curative effect was very well marked, for Dr. Renard walked in the evening, then renewed the sulphur in the stockings before sleeping in them, found himself very much relieved the next morning, and nearly quite cured on the morning after. A few days later, he left off the brimstone, and the pain reappeared in the soles of the feet, but yielded very soon to the reapplication of sulphur. Since the year 1857, when he was first attacked, the same experiment was repeated every winter when he was suffering from chronic tenodynia, either in the hams, the heels, or the elbows. He felt under the influence of the contact of the flowers of brimstone, the skin becoming hotter, slightly excited, and more disposed to sweating; and as soon as this effect was produced, the relief of the



main seemed to be immediately marked. Whatever may be the explanation of the manner in which sulphur exerts its curative agency, Dr. Renard affirms that it has a beneficial effect upon the rheumatic pains of the tendons, and that this action is the more rapid and certain in proportion as the tendons are more superficial and the sulphur is kept more closely over the painful parts.—*B. & F. Med.-Chir. Rev.*, Jan. 1864, from *L'Union Médicale*, April 21, 1863.

19. *Male Fern in Tapeworm*.—Dr. ALEXANDER FLEMING gives the following as the result of his extensive therapeutical inquiries as to the usefulness or otherwise of the oil of male fern in tapeworm and the best mode of exhibiting the drug. These inquiries embrace 100 cases.

*Sex*. Of these 100 cases, 30 were males, and 70 females.

The remarkable preponderance of the female sex among the subjects of tapeworm, here shown, and, as I believe, for the first time on numerical data, is full of interest in relation to the cause of the disease, and most deserving of further inquiry. The great majority of the cases embraced in this report are taken from hospital out-patients, among whom the women suffer frequently from dyspepsia, very much more so than do the men; and we can readily understand now the "measle" will have a higher chance of escaping death in a weak stomach, and subsequently making a home for itself in the bowels. As respects the diet itself, the risk run by men must be greater than that by women; as they eat a larger proportion of animal food, and, in Birmingham especially, of pork.

Our returns show that the male-fern, as a remedy, is of equal efficacy in both sexes.

*Age*. The age of the patient is not mentioned in 8 of the cases. Of the remaining 92, the average age of all, in round numbers, is 29; of the females, 30; of the males, 28. The returns include cases of all ages except infancy, and prove that the oil of male-fern is an efficient remedy as well in the child as in the adult. A child of 1 year and 11 months is the youngest, and a woman aged 59 the oldest example. The exclusive milk diet of infants, and consequent freedom from the cause of the parasite, explains their immunity from tapeworm.

*The Duration of the Disease* is not given in 33 cases. Of the remaining 67, it is stated to vary from a few days, as in 4 cases in Dr. Anderson's schedule, to 16 years, as in the example reported by Mr. Anderton. There are 11 cases whose duration varies from 6 weeks to 10 months; 16 are reported of 1 year's duration; 9 of 2 years; 4 of 5 years; 3 of 7 years; 3 of 10 years; 1 of 12 years; 1 of 14 years; 2 of 20 years; and 1 of 36 years. The returns show that the oil of male-fern has been as efficient as a remedy in cases of long standing as in the more recent.

*Previous Treatment*. In 35 of the cases, it is stated that there was no previous treatment. Among the remedies which had been used in the others, turpentine was employed twice—once with, and once without success. Turpentine had been given on fifteen occasions—seven times with, and eight times without success. The oil of male-fern had been previously used five times—three times with, and twice without success. In one of those cases where it had failed, it was subsequently given in mixture with milk, in the mode which I have suggested, and with perfect success.

*Dose, Time, and Mode of Administration*. *Dose*. The medicine has been administered in doses of a few minims, of half a drachm, of one drachm, one and a half, and of two drachms. The returns show that one drachm is a sufficient dose; at least, in the great majority of cases. The larger doses more frequently excite sickness, vomiting, and diarrhoea.

*Time*. In many of the cases, the oil was given in the morning; in a greater number, at bedtime. The results of the two methods, when compared together, do not show any material difference in success. I prefer to give the drug at bedtime, because the patient should continue to fast for eight or ten hours after taking it; and it is easier to do so during sleep than waking.

*Mode*. In 47 of the cases, the oil was given with milk, in the manner which I had myself suggested in the observations which accompanied the schedule. The following is the formula referred to.

"Mix well of oil of male-fern one drachm, and mucilage half an ounce. The

draught is mixed with one ounce and a half of sweet milk, and taken at bedtime; the patient having omitted the dinner and evening meal of that day. Taken thus, on an empty stomach, the mixture is carried speedily into the intestines, to feed, and at the same time poison, the hungry parasite which nestles there. Milk is the favourite food of the worm. Next morning, a dose of castor oil may be given. If necessary, this medication may be repeated daily, one, two, and three times, or until the worm is discharged."

In the remaining cases, the drug was given without milk, in mucilage or some aromatic water. In nearly all these cases comprised in the returns, care was taken to give the remedy on an empty stomach. The two classes of cases, therefore, or those in which the male-fern was given with milk, and those in which milk was not used, admit of a fair comparison; and of the higher efficiency of the first of these methods of exhibition the returns are conclusive. So given, the drug acts more quickly, and at the same time more efficiently. The proportion of failures is nearly the same with both methods; but the length of worm discharged, and, so far as we can judge, the thoroughness of the cure, predominate in those cases where milk was used.

*Physiological Effects.* Sometimes the medicine operates without pain or nausea; more often, there are sickness, griping pains, and purging. Vomiting is reported in ten of the cases. Dr. Bree observes that, under its use, the urine, was usually loaded with lithic acid. In one of Dr. Anderson's cases, the menses, which had been absent for several months, returned after the use of the oil. The vomiting and purging were caused frequently by the second dose, after the worm had been discharged; and must be ascribed to the action of the drug itself on the gastro-intestinal mucous membrane—not, as some have thought, to the dying struggles of the poisoned worm, though it may be that these play some part in their causation.

In five of the 100 cases, the worm was discharged alive. Except that it was expelled with unusual speed, I cannot trace any circumstance to account for the living state of the parasite in these examples.

The largest portion of tapeworm which is reported to have been passed is fifteen yards. This was in Dr. Bennett's case. No mention is made of any other species of tapeworm than the *tænia solium*. Large round worms were discharged in two cases.

The worm was for the most part expelled after the first dose, but in a few cases not till after the second or third dose. The worm was often passed before any purgative was taken, and separately from the ordinary evacuation. In one instance recorded in Mr. Thompson's schedule, the worm was discharged upwards by vomiting. This was the case of a female aged 40, who had suffered many years from tapeworm. She took one drachm of the oil of male-fern in milk, according to my formula; and, in the course of an hour, vomited a very long tapeworm, which was quite dead. None passed by stool. After two days, the draught was repeated; and she passed a large quantity of dead and broken tapeworm. The patient had previously taken various remedies without success. In Dr. Anderson's schedule, the case of a girl aged 18 is narrated, who became very sick after taking two drachms of the oil of male-fern in milk, and vomited a large round worm. She was afterwards purged smartly, and passed a quantity of joints of tapeworm.

The average time which elapsed between the administration of the oil and the expulsion of the parasite was six hours. It was discharged in half an hour in seven cases, in one hour in nine cases, in two hours in six cases, in three hours in three cases, in five hours in six cases. The longest interval mentioned is twenty-four hours.

In several of the cases, the worm was passed in a broken and softened state. In these cases, a considerable interval had elapsed between the taking of the oil and the expulsion of the worm, the softened condition of which was probably due to a more or less complete digestion of the already poisoned and dead worm.

The head is reported to have been found in three cases (schedule of Mr. Spender); but, in one of these, its discovery rests only on the authority of the patient. It is generally thought that the rarity with which the head is obtained is due to its not being killed and detached with the body; but it seems impro-

able that the poison should take more effect on the body than the head of the creature, and which it meets first in its passage downwards from the stomach. According to Dr. Nelson, the food is taken in chiefly by the head. I am more inclined to refer the rare discovery of the head to its solution in the digestive fluids. Thin and delicate, it must be easy of digestion. Moreover, placed higher up in the canal, it is in closer proximity to the more active solvent juices. The thin and translucent neck, though found more often than the head, is also generally absent; and probably for the like reason. I am disposed to refer relapses to the growth of other worms, which have escaped the action of the poison, and not to the resprouting of the old head.

*Duration of the Cure.* Though relapses often occur, there is reason to believe that the cure is permanent in a large proportion of the cases. The length of time (one year) assigned to his inquiry, and the difficulty of ascertaining the future history, especially of hospital patients, render the returns in reference to his important point unavoidably of less value than we could desire. I may mention in this place, that Mr. Osborn in a note to his schedule, states that two cases of tapeworm are known to him, both females, of 38 and 17 years of age respectively, where the oil of male-fern was used with success, and where the patients remained, to his knowledge, well for many years.

In concluding this report, it is only just to remember, in connection with our subject, the early labours of Peschier of Geneva, and dating so far back as 1830, but which had been almost overlooked in England until Dr. Christison, in 1853, gave the sanction of his authority to the results of Peschier's trials. The later experiences of Drs. Gull, Jenner, Bennett, Willshire, Ransome, and others, have abundantly confirmed their observations, and, conjoined with the results of the present inquiry, establish beyond doubt the great efficacy of the oil of male-fern in tapeworm, and its superiority to the other known remedies of this disease. Further, our report points very decidedly to the most efficient mode of exhibiting the drug; and the whole inquiry has, as I have reason to know, rendered excellent service to therapeutics by making the virtues of the oil of male-fern more widely known and employed throughout the profession.

It remains only for me to offer my best thanks to all the gentlemen who made returns to me for their valuable aid in this inquiry.—*British Med. Journal*, Jan. 16, 1864.

20. *Diet in Diabetes.*—Dr. EDWARD SMITH concludes some interesting observations on this subject with the following summary of the proper diet in Diabetes.

1. *Fluids.*—To be limited by degrees daily until they shall not exceed five pounds and a half in both fluid and solid food. Of this quantity two to three pints should consist of new or skimmed milk, and one pint, or less, of tea. In the cold season and at night they should always be given when hot. Of all alcohols brandy is the best, and may be given with water only, or added to milk, or beat up with egg and milk, and given several times daily. No fluid should be given in greater quantity than half a pint at a time, and when milk is reduced in volume by cooking, the daily quantity of fluid must be made up by an additional supply of the same or other fluid.

2. *Solids.*—Dr. Prout's combination of eggs and milk (with sharps substituted for bran) is excellent. Four ounces of sharps and 4 oz. of peas, beans, or lentils may be made into bread or pudding, with milk, or into omelettes with eggs and herbs. Eggs and gelatin may be given when starchy food cannot be altogether intermitted. Eggs, gelatin, cheese, gluten, bread, meat, fat, and oils may be given as largely as they can be digested. The free use of salad oil should be urged, whether in the cooking of fish or flesh, or in the use of water-cress as a salad or drunk alone, so that several ounces may, if possible, be consumed daily; but as there are in all persons preferences and dislikes in reference to particular fats, that kind—whether butter, suet, oil, or fat of meat—should be allowed which is the most agreeable. Four oz. of sharps, 3 oz. of wheaten flour, 5 oz. of peas, 1 lb. of meat, 2 oz. of cheese, 2 pints of milk, and 3 eggs, will afford more than about 13 oz. of carbon and 1 oz. of nitrogen daily.—*Lancet*, Feb. 6, 1864.

21. *Sudden Death from Obstruction of the Pulmonary Artery by Coagula.*—The following remarkable case of this is recorded in a recent number (Jan. 30, 1864) of the *Lancet*:—

"Mary A.—, æt. 23, was admitted into St. George's Hospital on the 30th of September, 1863, with slight febrile symptoms. She was an hysterical but healthy girl. The symptoms rapidly subsided, and she became convalescent. She was about to leave the hospital recovered, when some stiffness and swelling of the left leg was observed, and she decided to remain a day or two longer. The same day the nurse was called to her at the water-closet, and found her in a fainting state, barely conscious. She died in a few minutes afterwards. An inquiry into her history showed that her previous health had been always good until five weeks before admission, when she had complained of pain in the chest. Ten days before she entered the hospital these symptoms had increased so far as to induce her to keep her bed, and she had several distinct rigors. The severity of the attacks must have subsided before admission, when the skin was cool and the tongue clean. She had quiet, rather frequent pulse, and the aspect of health. The patient had been treated at first with ammoniated salines, and afterwards was given valerian and aloes. Close questioning of her friends after death proved that she always enjoyed good health.

*Autopsy, sixteen hours after death.*—The body was plump and well nourished; a good deal of fat was present in the abdominal walls. The legs were slightly cedematous. The brain and its arteries were healthy. The left ventricle of the heart was quite uncontracted; the right was partly contracted. The pulmonary artery was entirely filled with partly decolorized clot, which was more or less adherent to its walls. This extended from the pulmonary valves to the bifurcation, and thence into both branches, and so on to the smallest branches which could be reached by dissection. In the lung, here and there a small ramification was found which was empty; but the right and left pulmonary artery, as well as the main trunk, were entirely obstructed. The fibrin was hard, and it had the appearance of having been formed for some time. The valves of the heart and the aorta to its end were natural, as also were the carotid and vertebral arteries. Lungs, bronchi, and pleuræ were healthy. The right leg was more obviously cedematous than the left, and its vessels were therefore examined. The deep femoral artery contained a partly bleached coagulum, which commenced with a point at the origin of the vessel, and filled it up as far as it could be followed. The femoral veins of the same limb also contained a clot, which began in a tapering form at the middle third of the thigh, and extended downwards to the ultimate ramifications of the vein. This was black in the centre, partly fibrinous at the edges. It was firm, and fully distended the vessel. Some slight adhesions held together the liver and spleen; these readily broke down, and allowed of the escape of a quantity of creamy matter, which was contained in a cavity between the liver and spleen, formed, however, chiefly at the expense of the latter. Under the microscope no true pus-cells were seen, but there were many nuclei and blood-corpuscles. It was believed that the apparent abscess was the result of the dissolution of a fibrinous block in the spleen. The vagina and cavity of the uterus contained pus.

22. *Clinical Observations illustrating the effects of implication of the Pneumogastric Nerve in Aneurismal Tumours and Morbid Growths.*—This is the title of a paper read before the Royal Medical and Chirurgical Society (Jan. 26, 1864), by Dr. S. O. HARRISON. After referring to the complex distribution of the pneumogastric nerve, and to the important symptoms of disease produced by the implication of its branches, the author proceeded to describe several cases of thoracic aneurism in which the branches of the recurrent laryngeal nerve, or the trunk of the pneumogastric, were involved. The first case was that of a man, aged 39, who had been engaged in laborious work at Chatham and Woolwich dockyards. Two months before death he began to suffer from hoarseness, and the laryngeal symptoms were more marked than any other. There were paroxysms of urgent dyspnoea and slight dysphagia. Five days before death hemorrhage from rupture into the trachea commenced; and on the morning of

his death the bleeding suddenly became profuse, and was quickly fatal. Dilatation of the aorta, double aneurism of the arterial innominate, and perforation into the trachea, were found. There was pressure upon the commencement of the recurrent nerve, and commencing degeneration of the muscular fibre of the laryngeal muscles on the same side. As to the physical signs, dulness and double bruit were produced immediately over the first bone of the sternum, but there was no bruit over the aortic valves. No pain had been complained of. The value of the laryngoscope had been shown in demonstrating that no disease of the larynx existed, slight œdema of the mucous membrane only being present. The second case was that of a sailor, aged 35, who had apoplexy, with aphonia and symptoms resembling phthisis; aneurism was, however, suspected. The recurrent and the pneumogastric nerves were both compressed: the muscles of the larynx were on one side pale and wasted, and the lung on the same side was in a state of asthenic pneumonia. The thoracic duct had also apparently been compressed. In the third instance recorded, the symptoms of cardiac disease obscured those of aneurism. There had been pericarditis and endocarditis, and fibroid degeneration of the muscular fibre of the left ventricle existed. The patient was a groom, aged 45, and two months before death symptoms of catarrh and bronchitis came on; the heart's action was irregular and tumultuous; the pulse very feeble, but without bruit. Afterwards a triple sound was produced below the nipple, and with renewed bronchitis there were signs of pleuropneumonia of the lower lobe of the right lung. No pain and no dysphagia were complained of, but paroxysms of urgent dyspnoea, with extreme faintness; in one of these attacks he died. In addition to the degeneration of the heart, an aneurism was found at the commencement of the transverse arch; and the pneumogastric, after giving off its recurrent branch, passed directly over the sac, and the compression of this nerve had determined the pneumonic consolidation of the lower lobe of the right lung. In the fourth case, the recurrent laryngeal nerve was compressed, and had produced paroxysms of urgent dyspnoea, but the dyspnoea was in great measure due to direct pressure upon the trachea. There had been feebleness of the voice, with dysphagia. Pain was of an agonizing character, but also paroxysmal, and it was apparently due to direct pressure on the nerves. The aneurism of the aorta was situated immediately beneath the subclavian, and had ultimately perforated the trachea; but rapid effusion of blood had been prevented by layers of fibrin, and it was probable that the first oozing of blood took place nine months before death. No bruit had been produced, but a ringing second sound; the heart was healthy. The author stated that pressure on the pneumogastric nerve and its branches by aneurismal tumours in the chest led, first, to paroxysmal and spasmodic contraction of the muscles of the larynx; secondly, to diminished muscular power, and to paralysis and wasting of the laryngeal muscles; and thirdly, to pulmonary congestion and consolidation; but that gastric symptoms, such as were found in peripheral pulmonary irritation of incipient phthisis, were not observed in thoracic aneurism. The effect of changed nervous supply of the œsophagus was briefly referred to; spasmodic contraction, and possibly also ulceration, taking place without direct pressure; the author stating that spasmodic contraction from this cause aggravated the effects of the direct pressure of tumours generally. It was likewise mentioned that occasionally no dysphagia existed, because the whole of the œsophagus opposed to the tumour was pushed aside *en masse*. In conclusion, the author detailed an instance of disease affecting the supra-renal capsule, with bronzed skin; and exhibited a drawing from his dissection of a branch of the pneumogastric to the capsule. The irritability of the stomach often present in these cases was referred to this connection. A dissection showing the larger branches of the semi-lunar ganglia, and the manner in which some of these branches were involved in the diseased capsules, was also exhibited.—*Med. Times and Gaz.*, Feb. 6, 1864.

## SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

23. *Statistics of Amputation performed at St. Bartholomew's Hospital, from the 1st of Jan., 1853, to the 1st of Oct., 1863.*—G. W. CALLENDER, Esq., read a communication on this subject before the Royal Med. and Chirurg. Soc., Feb. 9, 1864.

These amputations are so arranged in a series of tables as to show, for a number of consecutive years, the totals of deaths and of recoveries in male and female patients. The operations comprise all the principal amputations, arranged as primary and secondary, and as amputations for disease. After some general remarks, certain deductions from the several tables are detailed. Of 93 primary amputations, 78 recovered, and 15 died; thus 16.1 per cent. of all these amputations prove fatal, or 1 in 6.2; and if the age of the fatal cases, which averages 47 years, be taken into consideration, it appears, for children and for adults under 40, that an unfavourable result after these amputations is an exceptional occurrence. The secondary amputations number 37, and of these 24 recovered and 13 died; so that 35.1 per cent., or 1 in 2.8 of all these operations, prove fatal. Taking primary and secondary amputations together, 7.1 per cent. of those of the upper extremity, and 32.4 of those of the lower extremity, prove fatal; and 21.5 per cent., 1 in 46, of the total of traumatic amputations. There are 228 amputations for disease or for malformations: 182 recovered, and 46 died, or 20.1 per cent. Of those performed at the upper extremity, 18.5 per cent. died; whilst of those which involved the lower, 20.3 per cent. ended fatally. It follows that, of the total 358 amputations, the ratio of mortality are: after all primary amputations, 16.1 per cent.; after all secondary, 35.1; after all amputations for disease, 20.1; after all amputations at the upper extremity, 10.8; after all those at the lower, 23.6; and after all amputations, 20.6 per cent. *Causes of Death.*—Old people are little able to resist the shock of the more severe amputations, the influence of age being most marked with primary operations. Females do not rally so easily as males after the severe shocks which precede and accompany primary amputations, nor after the depression consequent upon amputation at the thigh. The rate of mortality on the totals of cases is 18.9 per cent. for males, and 21.6 per cent. for females. The totals of deaths and of recoveries, as influenced by the age and sex of the patients, are shown in a separate table. After primary amputations, traumatic complications prove fatal at the rate of 40 per cent., and exhaustion at the rate of 20 per cent. of the total number of deaths. After secondary amputation, exhaustion is the chief cause of death, 38.4 per cent. sinking in this way; 23 per cent. die from secondary hemorrhage. Of the total of traumatic amputations ending fatally, 28.5 per cent. sink from exhaustion, 25 per cent. from traumatic complications, 21.4 per cent. from hemorrhage, and 7.1 per cent. from pyæmia. After amputations for disease ending fatally, exhaustion is the cause of death in 28.2 per cent.; pyæmia in 39.1 per cent.; and visceral complications in 15.2 per cent. Taking the four chief causes of death after all amputations, we obtain the following rates of mortality in the totals of fatal cases:—

Amputations.	Hemorrhage. Per cent.	Pyæmia. Per cent.	Exhaustion. Per cent.	Visceral Complication Per cent.
Primary . . .	20.0	—	20.0	6.6
Secondary . . .	23.0	15.3	38.4	15.3
All traumatic . . .	21.4	7.1	28.5	10.7
For disease . . .	4.3	39.1	28.2	15.2

Of the total 74 fatal cases 24.3 per cent. die from exhaustion, 27 per cent. from pyæmia, 12.1 per cent. from hemorrhage, 16.1 per cent. from visceral complications. After giving the particulars of the cause of death in each fatal case, and the injury or the disease for which the operation was performed, the days in which 74 cases terminated fatally are shown in a tabular form. From this

appears that deaths from shock, or from other injuries, or from both combined, take place within the first twenty-four hours, and within forty-eight hours the deaths from recurrent hemorrhage occur. Exhaustion is most fatal about the fourth day; secondary hemorrhage is a cause of death from the fifth to the twelfth day; pyæmia from the seventh to the twenty-fourth. Three cases of amputation are referred to, in which death was not accelerated by the operation, the patients dying on the 109th, the 102d, and 93d day respectively; and the paper concludes with an account of certain cases, and of certain sequences of fatal cases and recoveries, showing how necessary it is to mass together a considerable number of consecutive operations before we have a chance of arriving at tolerably just conclusions.

Mr. BRYANT, after remarking on the value of Mr. Callender's paper, said that he was surprised to find some startling difference in the results he had obtained, and in those he (Mr. Bryant) had deduced from a similar kind of analysis of the cases at Guy's Hospital. As regards numbers, his and Mr. Callender's statistics were pretty much alike, but the rate of mortality was very different—in the former 20 per cent., in the latter 25; when, for injuries, the difference was greater still, the mortality at Guy's being nearly double. In amputation for disease, however, it was the reverse. Mr. Bryant asked if it were possible that a difference of practice at the two hospitals could reconcile these differences? At Guy's, conservative surgery was carried to an extreme degree, and possibly too far. Then, perhaps, at St. Bartholomew's the practice might run a little towards the other extreme. He spoke, however, on this subject with great diffidence. Mr. Bryant then alluded to the very marked difference in the mortality after amputation of the upper extremity, in his and in Mr. Callender's series. Mr. Bryant then asked for the simple results as regards amputation of the thigh or disease of the knee-joint, as he wished to compare the mortality of this operation and that of excision of the knee-joint. The mortality of the latter was about one in five; whilst at Guy's and St. George's that of amputation of the thigh was one in eight.

Mr. CALLENDER said that the great discrepancy Mr. Bryant had alluded to, was accounted for by the difference in the ages of the patients in his own and in Mr. Bryant's series. Many of the traumatic cases were lads from printing offices in the neighbourhood, and the injuries were less severe than those from railway accidents. Then as regards the great mortality after amputation of the upper extremity, several of the cases were exceptional. Two died of erysipelas, and two were at death's door when the operation was done. He had not made an analysis as to the mortality from amputation above the knee, but would add a note on this point to his paper. In reference to the remarks by Mr. Spencer Wells, he said that, at St. Bartholomew's, great pains had been taken to improve the condition of the wards; and, moreover, a surgical registrar had been appointed, not merely to take notes of the cases of individual patients, but to watch the general health of the patients in the wards, to report upon any epidemics that might appear, and generally to supervise the hygienic arrangements, under the direction of the surgical staff.

24. *New Method of arresting Venous Hemorrhage after Amputation.*—It is by no means uncommon for an annoying venous hemorrhage to take place after amputations, and though this may be often checked by elevating the stump or by pouring cold water over it, still these measures frequently are tardy in their effect and sometimes fail. Mr. GEO. H. PORTER has proposed (*Dublin Quart. Journal Med. Sci.*, Nov. 1863) an ingenious plan for arresting the venous hemorrhage in these cases. He observes "that surgeons in this country are not favourable to the practice of ligaturing a vein, although having the sanction of such authorities as Hey, Desault, and Hennen. The dangerous, and sometimes fatal, phlebitis following such procedure, has given us a wholesome dread of tying, or, in any way inflicting injury on these vessels. Again, I should much fear that placing a ligature round both vein and artery—as, for example, the femoral vein and artery—(Desault) would prevent the cord having the desired effect on the latter, as the vein must hinder it from dividing the internal and middle coats of part of the tube, and thus render the possibility of secondary hemorrhage to be

apprehended. It occurred to me that the trouble might be got rid of by the simple contrivance of temporarily grasping the mouth of the vein within the jaws of a very small Dieffenbach's artery forceps, having connected with it a string to take it away when all bleeding had ceased. Its pressure effectually controls the flow of blood; its bulk forms no obstacle to bringing the parts into close approximation; and it can be removed with the greatest ease, almost, indeed, with the same facility that we draw away a ligature. At my request, my colleague, Mr. Collis, lately tested the plan with the most marked advantages, in a case of amputation of the thigh, in which bleeding from the femoral vein proved troublesome. My most sanguine expectations were realized by its action, as it instantly sealed the vessel, and so guarded against further hemorrhage and purulent absorption. It inflicted no injury; and, in the case above mentioned, it was pulled away in forty-eight hours without causing any pain to the patient."

25. *Varicose Veins*.—Mr. SKKY remarked (*Lancet*, Jan. 2, 1864), that the treatment of varicose veins involves two objects: "1st, the increase of power to these organs; and 2d, the turning the current of the venous circulation into healthier channels. The first is effected by the liberal administration of nutritive stimulants. The second object has tested the inventive faculties of many surgeons. I leave it to others to commend the various schemes adopted by them. I discountenance, from long observation of its incompetency to cure, the employment of the needle, whether through the vein or under it, single or double. It has these objections: 1st, it is not unattended with danger; and 2d, it fails to obliterate the vein, except at the point of its application, mainly because the applications cannot be safely made in numbers proportionate to that of the veins affected. I have at present in St. Bartholomew's Hospital a woman under treatment for varicose veins of the leg, whose limb was jeopardized by the employment of the needle a year ago. A long illness, with severe inflammation and extensive abscesses, followed. The same limb is again under treatment for the original disease. There is no danger in making any number of small eschars on the most projecting surfaces of varicose veins, if made with an escharotic composed of two-fifths of pure potash and three-fifths of powdered lime. This powder, well combined, is made into a paste with alcohol. Whether other escharotics are dangerous in their operation on veins I do not stop to inquire; I only know that the Vienna paste, combined as I have above described it, is not. These eschars may be made in any number proportionate to the extent of the disease. I have treated perhaps 250 cases in the course of the last ten years, and I continue to treat them, by the same means. The paste is applied over the most projecting parts of the vein in the following manner: through a series of about four layers of adhesive plaster a circle is cut of the size of a threepenny-piece or smaller. The influence of the escharotic extends through the vein; and it is curious to observe that from the hour of its application the entire vein appears to be obliterated, and is undetectable to the finger on pressure. From ten to twenty-five eschars may be applied between the ankle and the knee. Twenty minutes suffice for the full operation of the escharotic, and an average of one month for the cure. In very weak constitutions the ulcers will heal very slowly, unless well-directed efforts be made to give force to the general system."

26. *Erectile Tumours of the Glans Penis*.—Dr. E. D. MAPOTHER reported to the Surgical Society of Ireland a case of this, and exhibited a drawing of it. The growth starts from left edge of the meatus urinarius, which it pushed into the form of a semicircular slit and projected outwards to about the size of a small hazel-nut. The tumour was not congenital, having been first perceived nine years before, when he was 26 years of age. It produced some pain, an uneasy stretching feeling at the urethral orifice, but not sufficiently annoying or constant to make him desirous of submitting to any operative procedure.

A somewhat similar growth has been observed about the orifice of the female urethra.

Mr. RICHARDSON exhibited at the same meeting of the society a drawing of a



congenital erectile tumour of the glans penis which came under his observation in a boy three years of age. The ulceration of the glans was far more extensive than in Dr. M.'s case.

27. *Osteo-Aneurism*.—In our number for April, 1863, pp. 505-6, we noticed a very interesting case of this reported by Dr. MAPOTHER, and expressed the hope that the future history of the case would be made known, as the cure was too recent to decide as to its permanency.

At the meeting of the Surgical Society of Ireland on the 8th of January, 1864, Dr. P. reported that the patient when last heard from, in October, 1863, a year after the operation, was in the most perfect health.

28. *Lithotriety without Injections*.—Mr. HENRY THOMPSON states (*Lancet*, Feb. 20th, 1864), that for some time past he has practised lithotriety—first without preliminary injection of the bladder, and secondly, almost without any injections subsequent to the setting; and he is satisfied that this mode of operating is a considerable improvement on the usual practice.

"My experience of the method," he says, "warrants me in speaking confidently. During the last three years I have, with the exception of a few patients only, always operated without the preliminary injection. In these some unusual condition has generally existed rendering injection desirable: this will be referred to presently.

"Hitherto all operators have agreed in recommending that the urine should be first withdrawn, and that from four to six ounces of warm water should be injected into the bladder before introducing the lithotrite for the purpose of crushing the stone. It has been assumed that the presence of at least that quantity is essential to protect the walls of the organ from injury when the lithotrite is opened and closed. And further, it has been considered desirable that the fluid should be present in *known* quantity. Hence lithotriety has often been regarded as inadmissible in a case where the bladder has been so irritable as to contain only an ounce or two of urine; and lithotomy, or a prolonged course of sedatives, baths, and injections, usually ending in disappointment, has been resorted to with the view of enabling the bladder to retain the orthodox four to six ounces."

"I am quite sure that this quantity is unnecessary. Of late I have been content with two or three ounces, and, taking proper precautions, have crushed with the best results in an ounce of fluid. Neither does it appear necessary to know the exact quantity before commencing; for on first opening the lithotrite in the bladder, which the operator does very gently as, feeling his way, the amount of space available for his manipulations is at once manifest. Moreover, space in the bladder does not necessarily correspond with the presence of some fixed quantity of water therein. In some conditions of the bladder—or, to speak more accurately, perhaps, in some bladders—two or three ounces afford as good a working area as five or six ounces in others.

"It may be said—What is gained by the omission to inject? A very considerable advantage. It appeared to me very early in my experience of lithotriety, practised by others as well as myself, that most of the untoward occurrences met with arise either from too much or too rough manipulation, and that any step towards the improvement of the operation must for the most part be made by diminishing the amount of instrumental contact with the bladder and urethra. Hence, instead of introducing a catheter to draw off the patient's urine, and applying a syringe to inject a known quantity of water, I asked the patient to retain his urine for a little less than the accustomed period before the sitting; that is, if naturally he was able to retain his urine for about an hour, he was requested to pass it forty minutes before the time of the visit. The lithotrite was then at once introduced, and the crushing proceeded with. It is certainly undesirable to operate when the patient is urgently wishing to pass urine; hence it is as well to commence rather too soon than too long after he last act of micturition. In this manner the operator deals with a bladder not yet aroused to action, as it is sure to be when a catheter has been introduced, and when, moreover, the viscus has been unnaturally distended; for

however slowly and gently a syringeful of liquid is thrown into the bladder, such injection is more irritating than the oozing in of the natural secretion by the ureters. An entire "sitting," then, consists in introducing the lithotrite; in crushing the calculus five or six or a smaller number of times, for which two or three minutes is a sufficient period; and in withdrawing the instrument.

"Such may be regarded as the rule of practice. But when the bladder is much atonied, its coats being deficient in tone, and a large portion of urine remains behind after each act of micturition, it is mostly advantageous to empty the bladder, and inject a few ounces of cool water. The stimulus of water at 60° or 70° Fahr. sometimes gives tone for a time to the muscular coats, and so aids in producing a better formed cavity for operating in than a capacious atonied, and flaccid bladder presents.

"Next, in reference to injections made subsequently to the crushing of the stone, little or nothing appears to be gained by their employment. Three or four rapid injections through a large evacuating catheter generally cause more and are calculated to do more mischief, than the operation of crushing. Besides it is not the best time to make them in relation to the object of their application. If used at all, it should be after nature has been allowed a period of three or four days at least in which to expel the *débris*. It is a remarkable power that which the urinary apparatus possesses of expelling foreign bodies, not only from the cavity of the bladder, but from the innermost termination of the organs in the kidney, and it appears perhaps to be scarcely enough relied on by some operators. It is a most happy provision for the safety of the individual, and, after all, relieves humanity of an infinitely greater number of stones than the surgeon does. He only comes in to remedy the exceptional failures of Nature. I like to feel how efficient an ally there is for the lithotritist in this said power, and to leave the expulsion of the *débris*, when properly pulverized, very much to those admirably adjusted arrangements existing for the purpose; and my experience of their capability in this respect is considerable and satisfactory. Only, when it fails, we must, as before, step in to aid Nature again, and promptly.

"On referring to my case-book, I find, in relation to the first question, that I have crushed upwards of a hundred times without using a preliminary injection; and, in relation to the second question, that I have completed successfully eleven cases of lithotrity, most of them recent, without once using the evacuating sound. The *débris* have been easily and entirely expelled by the natural powers of the patient."

29. *Subpubic Puncture of the Bladder*.—To avoid the danger of peritonitis, which sometimes follows the operation of puncturing the bladder above the pubes, M. VOILLEMIER has devised the following operation. The patient is placed on his back, with the legs slightly separated; the pelvis is raised by a thick cushion, so as to bring the pubes forward, and to prevent the distended bladder from embarrassing the operator. An assistant, standing at the left side of the patient, draws the penis downwards and backwards. Sitting at the patient's right side, the surgeon feels with his right fore-finger for the suspensory ligament, and with his left hand he introduces by the side of this ligament a trocar, curved so as to pass round the pubic bone. During this stage of the operation, the instrument is carefully supported and guided by the right hand, lest the trocar should turn too suddenly and come into contact with the bone. The canula having entered the bladder, the trocar is withdrawn. The operation was successfully performed by M. Voilemier, in the Hospital St. Louis, on October 14th. The cicatrization of the wound was complete in forty-eight hours; and, at the time of reporting, no trace of the operation remained, beyond a fibrous cord indicating the passage of the instrument.—*Brit. Med. Journ.*, Jan. 23, 1864, from *Gaz. Méd. de Paris*, 14 Nov. 1863.

30. *Left Ovary in the Sac of an Oblique Inguinal Hernia, occurring in a Young Woman*.—Mr. HOLMES COOTE communicated the following example of this to the Royal Medical and Chirurgical Society (Jan. 12, 1864):—

A young woman was brought into St. Bartholomew's Hospital with a swelling in the left groin, and suffering from the symptoms of strangulated hernia. In

the course of a few hours the usual operation was performed, when the ovary and the Fallopian tube were found in the sac. A similar malposition of parts was subsequently noticed on the opposite side of the body. The left ovary was removed, some thickened omentum cut away, and the patient was put to bed; but the sickness and constipation continued, and she died four days after the operation. The cause of the sickness, etc., was displacement of the stomach and transverse arch of the colon. Mr. Coote raises two questions: 1. Was the displacement of the ovaries congenital, or the consequence of the hernia? He inclines to the former opinion. 2. The woman stated that she had always menstruated regularly. Now, on the examination of the body, it was found that both ovaries were well developed, and that the formation of the Graafian vesicles was going on naturally; but the Fallopian tubes were quite impervious, the uterus was completely absent, and the vagina was a short canal—an inch and a half in length, and terminating in a thin membrane. She said that she had been menstruating the week before her admission; and some of the female attendants at the hospital noticed the usual marks, though faint, upon her dress. Are we to admit the possibility of menstruation under this abnormal condition of parts?

Mr. Partridge said it was a very interesting question to decide whether menstruation occurred, as was stated, under such circumstances as obtained in Mr. Coote's case, or whether it was merely a vicarious action. There was another question of great importance in a moral point of view, which presented itself to surgeons in such cases. Were they justified in emasculating, as it were, a woman in whom the ovaries were thus involved? A case had lately come under his care in which a difficulty of this kind existed. The patient was a male child, with the parts of generation so imperfectly developed that it was mistaken for a female, and christened and educated as such. It was discussed whether the testicles should be removed. The surgeon in attendance thought that they should, as their removal would be advantageous to the child in assisting it to keep up its assumed sex. Mr. Partridge decided, however, that the operation was not justifiable, and it was not resorted to. Mr. Partridge then referred to two cases in which the uterus was absent; the one was an unmarried, the other a married woman. In each the vagina was short, but the clitoris, ovaries, and breasts were fully developed. In neither of these cases had there been any menstruation.

31. *Polypus in the Urethra in Man.*—M. BEYRAN, having had under his care a case of urethral polypus in a man aged twenty-six, has collected the few recorded instances of this kind, and has communicated the results of his investigations in a memoir read before the Surgical Society of Paris. Urethral polypi, he finds, are most commonly seated at the commencement of the canal, in the navicular fossa; they may, however, occupy partly also the spongy portion, and sometimes even the entire length of the urethra. They are almost always met with on the lower part of the canal. The causes producing them are obscure. The ages of the patients have varied from fifteen to thirty years: but old age does not appear to be altogether exempt. The development of the tumours does not appear to be favoured by acute or chronic gonorrhœa, nor by syphilis; but M. Beyran thinks that chronic inflammation of the urethral mucous membrane, together with masturbation, are not altogether foreign to their production. The commencement of urethral polypi is not characterized by any remarkable symptoms; but as they increase in size and invade the urethral canal, one of the first morbid signs which attracts the patient's attention, is that the flow of urine is affected much in the same way as in ordinary stricture. This symptom is soon accompanied by heat, pain, and swelling of the penis during micturition; and blood is discharged, either pure or mixed with urine. Coitus is painful, and the discharge of semen is impeded. The bladder is incompletely emptied; there are frequent desire to pass urine, and tenesmus of the neck of the bladder and of the rectum, as in diseases of the prostate and bladder. Excrescences of this kind may, unless properly treated, produce perforation and fistula of the urethra. In the cases hitherto observed, urethral polypi in man have presented themselves in the form of small tumours varying in size

from a grain of barley to a pea. They have been fleshy, soft, and of a bright red colour; being very vascular, they have bled readily. Sometimes they have a broad base, sometimes are elongated or pedunculated. The urethra may contain several of them, seated in its inferior wall from the meatus to a distance of two-fifths or four-fifths of an inch from this orifice. The diagnosis is easy when the tumours project and can be seen; but while they are small, and especially if they be far back in the urethra, and the symptoms resemble those of stricture, mistakes are easily made. The diagnosis, however, may be essentially aided by observation of the phenomena produced during micturition, by the extreme readiness with which a discharge of blood is produced, and by a careful exploration of the urethra. The prognosis is not unfavourable, when the polypi are recognized early, and properly treated. But, left to themselves, they produce various accidents, and may even give rise to perforation of the canal. When the tumours are within reach, excision, followed by several applications of nitrate of silver, is preferable to avulsion or to ligature. Bougies, at first flexible and afterwards metallic, should be introduced, so as to repress any tendency to a reproduction of the polypi; and M. Beyran believes that it is useful to cover the bougie, before its introduction, with a layer of an ointment of calomel and savine. If perforation have occurred, the urine must be removed by a catheter, so as to allow the fistula to become healed.—*Gaz. Méd. de Paris*, 21 Nov., 1863.

32. *Structure of Indurated Chancre of the Prepuce.*—In a paper read before the Biological Society of Paris, M. ORDONEZ has given the following summary of the appearances observed by him on making a histological examination of indurated chancre. 1. The epidermis is considerably thickened around the ulcerated part. The most superficial cells all present a central nucleus, tolerably large, with from one to four nucleoli; contrary to what is met with in healthy epidermis, where the cells lose their nuclei as they approach the external surface of the skin. 2. The interpapillary digitations in the true skin are larger at the level of the chancre than in the healthy skin. The epithelial cells are very closely packed, larger than in the normal state, and infiltrated by a very transparent fluid, coagulable by alcohol. 3. At the level of the papillary layer of the skin, small hemorrhagic clots may readily be detected, produced, no doubt, by the rupture of the small capillary loops distributed in the papillæ. Hæmosine, mixed with red corpuscles in various stages of change, is effused in patches, between the papillary and the mucous layers. 4. The meshes of the cutis vera, from the papillary layer to its deepest portion, are infiltrated with a large quantity of plastic lymph. On merely making thin slices of the chancre, a large quantity of a very transparent, slightly viscid fluid, coagulating slowly on contact with the air, may be made to escape by pressure or by the action of the cutting instrument. This liquid, examined microscopically and with the aid of reagents, appears to be plastic lymph, or blastema. 5. The papillæ are increased in size, without being altered in shape. They are infiltrated with a large number of embryonic or transitory elements of the fibrous or connective tissue. These consist of round or oval nuclei, varying in diameter from .00016 to .00023 and .00036 of an inch; of small fusiform, fibro-plastic bodies in an ordinary state of evolution; and of small bundles of fibres of fibrous or connective tissue in progress of formation, and still presenting nuclei. 6. In the substance of the derma are to be found a number of fibrous cords, with perfectly developed fibres, and presenting a brilliant white aspect, contrasting remarkably with the adjacent tissue. This appearance is best presented by recent sections of the induration, examined by the aid of distilled water; it is also present, but less distinct, in specimens that have been preserved in alcohol or glycerine. M. Ordonez thinks that the alterations in the skin which he has described, satisfactorily explain the peculiar induration characteristic of the infecting chancre.—*Gazette Médicale de Paris*, 11 Octobre, 1863.

83. *A Specimen of Fracture of the Odontoid Process of the Axis, with perfect Anchylosis of its Apex with the Occipital Bone, and Partial Luxation Forward of the Atlas.*—Dr. PHILIP BEVAN communicated this remarkable case to the Surgical Society of Ireland:—

This specimen was discovered accidentally whilst making a dissection of the ligaments of the spine. On opening the spinal canal, and removing the dura mater, the perpendicular ligament or apparatus ligamentus colli was normal in size and strength, but on removing it, the apex of the odontoid process of the axis was found to be connected by perfect bony union to the anterior margin of the foramen magnum of the occipital bone, whilst its neck was attached to the body of the bone by a fibrous substance, about three-quarters of an inch long, of great strength and thickness, which closely resembled that which ordinarily unites the fragments of a broken patella. On cutting into this substance, the transverse ligament was found of its usual strength and thickness, retaining its normal connection to the atlas on either side, but completely altered in its relations and position; for instead of passing behind the odontoid process, with a concave surface covered with cartilage and synovial membrane, directed towards that process, it now lay between the broken off point of the odontoid process and the body of the axis, with flat surfaces upwards and downwards. It still presented its usual glossy appearance when dissected from the fibrous tissue in which it was imbedded, and was fully as strong as in the natural state; but the smooth, articular surface and synovial membrane were removed from its anterior surface. Not a vestige of either the moderator or suspensory ligaments remained. Having dissected the anterior surface of the spine, the upper articular processes of the atlas retained the normal relations to the occipital condyles; but the lower ones were thrown forwards, considerably in front of their natural position on the dentata, and were supported there by a bony growth from the anterior margin of its articular processes; in fact, the atlas was partially luxated forwards, for want of the support of the odontoid process, and the axis was modelled so as to support that vertebra in its new position.

The anterior atlanto-axoidal ligament was very strong, and must have served to prevent further displacement of the atlas.

On examining the bones the following changes were found to have taken place: The occipital foramen magnum was completely changed in shape, being heart-shaped, instead of oval, owing to the attachment of the apex of the odontoid to the centre of its anterior margin.

Its transverse diameter is greater than the antero-posterior, the former being one inch and a quarter, whilst the latter is only 10-12th of an inch.

The most normal size is the reverse of the above.

The apex of the odontoid is so completely incorporated with the occipital bone, that, but for a slight crack on the right side, no appearance of the line of union would be perceptible; the base of it is *smooth as if cut with a knife*, where it was attached by a fibrous tissue to the body of the axis. The occipital condyle of the right side is unaltered, but that of the left side is changed in shape, axis, and direction, being flat, circular, and directed downwards and outwards; transversely larger than natural; about three-fourths of an inch in diameter; smooth and covered with cartilage on its surface, but rough and irregular round the margin. The inner surfaces of the condyles are quite smooth, instead of being rough, for the attachments of the moderator ligaments.

The upper articulating surfaces of the atlas are not much altered; the left one is more round than oval, and not contracted in the centre, as in the normal state. The lower articular processes, on the other hand, are much altered, being rough and irregular on the surface, surrounded by a bony growth, as in cases of chronic rheumatic arthritis, and much larger than natural, especially in the antero-posterior diameter; but the chief alteration has taken place in the anterior ring of the bone; it is contracted inferiorly by irregular growths from the lower articular processes. The posterior surface of the ring is prominent and rather rough (instead of being smooth and lined with cartilage and synovial membrane); it was here firmly united to the fibrous tissue, which united the apex to the base of the odontoid process. The lower surface of this ring is thick and broad,

where it lay on the upper surface of a process of bony growth from the anterior margin of the odontoid process.

The axis is also much altered; the body of the bone terminates above, in the base of the odontoid, from which the apex has been broken; from the front of this a bony mass has grown in a groove, on the top of which rested the anterior ring of the atlas, with which it was connected by the above-mentioned mass of fibro-cartilage; the upper articular processes are on different planes, the left being lower than the right, both of them are much enlarged by bony growth from their anterior margin, which overhangs the body of the bone to the extent of a quarter of an inch. This served as a support for the luxated articular processes of the atlas. The surfaces are rough and were covered by a very imperfect cartilage; the right is convex; the left concave.

The remains of the base of the odontoid is rough and very convex towards the vertebral canal; its upper surface is very irregular, being grooved transversely in front for the anterior ring of the atlas and behind for the attachment to the fibro-cartilage. It is much enlarged by the bony growths above described, being about two inches in circumference at the part corresponding to the neck of the process, and is so rough and irregular as to give it much the appearance of the bone represented in Mr. Adams' book, "on Rheumatic Arthritis."

I am not aware of any case similar to the above. Rokitsansky says that, "in a few cases, fracture of the odontoid process has not only not proved fatal, but has existed for a considerable time without union of the fragments. A specimen of this kind is contained in the Vienna Museum."

He gives no particulars concerning it, says nothing of the state of the moderator ligaments, or whether the point of the odontoid was ankylosed to the occiput; nor does he mention the partial luxation of the atlas.

The specimen was taken from a woman aged about 40, who died of dysentery in one of the Dublin unions; all her bones were healthy and strong.

Although it is impossible to obtain a history of such a case, yet I had sufficient evidence that she never had anything remarkable about the motions of her neck; nor had she ever complained of pain or stiffness. Indeed, an examination of the preparation would prove that she must have had considerable power of moving the neck, as the fibrous tissue, which united the base and apex of the densatus, although very strong, would permit a considerable amount of twisting, which with the ordinary circumduction of the remaining cervical vertebrae would be sufficient for all ordinary purposes, and the nodding motions could not have been interfered with.

It was, till lately, a generally received opinion that both luxations and fractures of the odontoid process were necessarily fatal. Thus Chelius says, "that if fractures occur with luxation above the third vertebra, death speedily ensues." Samuel Cooper says, "that whenever the processus densatus is suddenly displaced or fractured, the effects on the medulla spinalis must be immediately fatal." Sir A. Cooper, Boyer, and Dupuytren, all declare that such cases are necessarily fatal. This opinion can no longer be admitted as regards fractures of the odontoid process, although I believe it is correct as regards luxations of that bone; for I cannot find any case of recovery where this process was proved by dissection to have been luxated without fracture. Two cases of supposed reduction of luxations of the axis are given in Malgaigne, but in both the diagnosis was very doubtful; in the first, the only important symptom was, that the head was bent forwards, so that the chin rested on the sternum. This might have been a luxation of any other cervical vertebra; and, in the second, although the constitutional symptoms were more important, and the head was thrown backwards and to the right side, still it was equally doubtful which vertebra was luxated, or indeed whether any vertebra was luxated. The interesting cases given by Dupuytren in his work "On Fractures," prove that it is extremely difficult to diagnose between severe contusions of the muscles and ligaments of the neck, and luxation of the cervical vertebra. In one of these cases the head rested on the left shoulder, could not be straightened, was accompanied with violent pain in the opposite side of the neck, numbness of the corresponding arm and cheek, difficulty of deglutition, and inability to turn the head without the body; in fact, all the symptoms of luxation were present, and a luxation

was supposed to exist; yet, in a few days, all these symptoms were removed by mere leeching and stuping. It is difficult to believe that a luxation of the odontoid process without fracture could occur without death supervening, if we recollect that either the transverse ligament must be broken, or the point of the process must pass under that ligament, which cannot occur without laceration of both the moderator and perpendicular ligaments, and that, in either case, the process must directly press upon the medulla oblongata, on the slightest motion of the head forwards.

But although luxations of the odontoid process must be fatal from pressure on the medulla, fractures of that process are by no means necessarily so. No doubt most of these must be fatal, either from the fearful shock to the system caused by such an amount of violence as is required to break that bone, or from the extravasation of blood on the medulla; but should the patient escape those dangers, there is no necessity for him to die of pressure of either of the fragments on the cord: in fact, the apex will be kept *in situ* by the moderator and transverse ligaments, whilst the base is retained by the powerful apparatus ligamentosus colli. In experiments on this subject, having first cut across the odontoid process with a fine saw, without injuring the ligaments, in attempting to force the spine forcibly forwards, I found that the bones themselves gave way before any considerable amount of pressure was made on the medulla by the body of the axis, owing to the great strength of this ligament.

Malgaigne has collected three cases of this fracture of the odontoid with luxation of the atlas; in one, the patient lived seventeen days; in the second, he lived for one month and six days; and, in the third, he lived for four months.

Whilst a still more interesting case is given by Dr. Parker, of New York, where the patient walked about on the fifth day after the accident; on the ninth day resumed ordinary occupations; continued at his work notwithstanding constant pain in the head and neck, for five months, when he suddenly became paralyzed and died; yet the odontoid process was broken off, and its lower extremity was pressing on the cord at the time of his death.

This specimen proves, not only that a patient may live for months but for many years, as there can be little doubt that the accident happened in very early life. Indeed, that it occurred before the union of the epiphysis was consolidated to the body of the bone is rendered extremely probable, by the anchylosis of its apex to the occiput, as it is well known that the point of that process is the last part ossified, and would, therefore, be more likely to become adherent at that time than after the process of ossification had been completed. The alteration in the shape of the anterior ring of the atlas, and the smoothness of the surfaces of the occipital condyles, where the moderator ligaments were attached, would lead to a similar conclusion.

In order to produce the accident, the neck must have been first violently twisted, so as to tear away the moderator ligaments, and then the neck must have been flexed backwards or forwards to break the odontoid process. The only practical deduction to be drawn from these cases is the necessity that perfect rest should be observed, and that a long time should elapse before a patient, who has received an obscure injury of the cervical region, should be permitted to support the weight of the head on the spine. Had Dr. Parker's case submitted to restraint, it is quite possible the broken bone might have united, and the patient lived as long as in the present case.—*Dublin Med. Press*, February 18, 1863.

**34. Foreign Bodies in the Ear.**—DR. VOLTOLINI says that the first thing we have to do is to assure ourselves that a foreign body really is within the ear, for it by no means rarely happens that persons apply under the belief that an insect or other body is within the ear, which the most exact inspection fails to discover. In some cases, inflammation of the membrana tympani is the cause of the deceptive sensation, and this becomes aggravated by the unsuccessful

<sup>1</sup> This ligament is so strong that it has been divided into three layers by Dr. Humphrey in his excellent work "On the Bones."

searching for the foreign body. On the other hand, persons sometimes have foreign bodies in the ear without being the least aware of it. The author removed a rolled-up, hairy leaf from the bottom of the meatus, in the case of a lady, who had not the slightest idea how it came there, and who consulted him for deafness of the other ear. In another case, a hexangular glass bead was removed, the patient being entirely ignorant that she had any foreign body in the ear. We should always make a very careful examination, and, when possible, by aid of the direct rays of the sun. No artificial or reflected light is a substitute for this; but where it is not attainable, Dr. Voltolini employs an apparatus of his own invention, which is also serviceable in laryngoscopy. The simplest means of all, however, is to fasten a wax taper to the handle of a bright spoon in such a manner that the flame exactly reaches to the bowl of the spoon. Taking the spoon by its handle, and holding the light against the ear, by looking over it we are not dazzled, and can explore at our leisure. While in some cases the symptoms caused by foreign bodies in the ear are of a frightful intensity, in others they are wholly insignificant, and do not attract attention to the seat of mischief. For want of due examination of the ear, many patients complaining of giddiness, stupor, singing in the ears, &c., are sent to Carlsbad, Kissingen, or the sea-side, when all the mischief is due to a foreign body in the ear. Distant organs of the body may exhibit more or less considerable symptoms without, in some instances, the foreign body in the ear giving rise to any peculiar sensation, so that its presence remains unsuspected.

For the removal of foreign bodies we should first employ only the gentlest means, such as syringing the ear with warm water; and by this substances of the most different form and composition—even lead-pencil—may be removed. Beyond a bent forceps, an ear-scoop with a long handle, and a small corkscrew, almost all the instruments recommended for this purpose are more or less toys, or dangerous. By means of the corkscrew, wadding and similar soft substances may be easily drawn out; and in many cases we can remove bodies by passing the ear-scoop behind them. We should never employ force, and never should pass any instrument a line farther into the meatus than we can follow it with the eye. For want of such precaution, many a patient has lost his life or his hearing. The first effect of rough procedures is to make matters more obscure, the bleeding and swelling which ensue rendering complete inspection impossible. If the gentlest endeavours (or syringing), during which the eye guides the hand, do not succeed, the body should be left at rest in the ear—aye, even were it a dagger's point; and strong as the expression seems, the author justifies it by reference to cases on record in which pointed bodies have remained for years in the ear with impunity. It is not meant to be said that bodies should in general be left in the ear, but that matters should not be made worse than they are by violent manipulations. Leaving the body in the ear, then, warm-water syringing and soft poultices are to be daily resorted to, until the ensuing supuration loosens it and gives it a new direction.—*Dublin Med. Press*, Jan. 27, 1864.

## OPHTHALMOLOGY.

35. *Exophthalmos from Abscess in an Infant*.—Prof. ARLT related an interesting case of this to the Vienna Medical Society. A child, 15 days old, was brought to his Dispensary, who, otherwise quite well, presented a remarkably large exophthalmos. The eye was forced out about half an inch forwards, and nearly to the same extent outwards, the lids being distended and œdematous, and the conjunctiva, cornea, and iris remaining in a normal condition. The exophthalmos first commenced appearing on the tenth day after birth, and within five days had reached this enormous size. Dr. Arlt, believing that no other diseased process would explain this rapid protrusion, considered that abscess must be its cause, and made an exploratory puncture beneath the internal rectus. A little blood was the sole result; but next day the child's condition getting worse, and



a large prominence appearing at the inner angle, an incision half an inch deep was made by a small bistoury between the ball of the eye and the lower eyelid, with the effect of discharging a spoonful of thick pus, and allowing the eyeball to be replaced. Dr. Arlt believed the abscess proceeded from the ethmoid bone. Neither he nor Professor Pitha had ever met with exophthalmos from abscess in a child, although familiar with this case in the adult.—*Med. Times and Gaz.*, Oct. 10, 1863, from *Wien Wochenblatt*, 1862, No. 18.

**36. Corneal Incisions made with Scissors, and their Application to Extraction of Cataract.** By O. BADER, Ophthalmic Assistant-Surgeon to Guy's Hospital.—It occasionally happens even to the best operators for cataract that, on account of a sudden movement of the patient's eye or head, or of some other untoward accident, while passing the cataract knife across the anterior chamber, the corneal section cannot be completed, and the cataract knife has to be withdrawn, and the section to be finished in some other way.

The object of making the corneal incision with scissors was therefore—(1) to ascertain whether a better control could be obtained over the movements of the eye during the operation; (2) whether corneal incisions thus made would heal well; (3) whether this mode of operating is applicable to cataracts complicated with morbid changes of the vitreous, etc. Details of a few cases are given, in which the complications existing with cataract might have influenced the healing of the section.

**Mode of Operating.**—The position of the patient, of the assistant, and of the operator are the same as in ordinary extraction. The eyelids are kept open by a spring speculum. An opening is made into the cornea either with a broad needle or with a cataract knife at the spot which would be selected for ordinary extraction. The opening should be large enough to give easy access to one blade of a blunt-pointed pair of iris or strabismus scissors. The aqueous humour is allowed to escape slowly. Then one blade of the scissors is passed through the small corneal incision into the anterior chamber, taking care to glide its point along the posterior surface of the cornea, and carrying on the incision with the scissors. The incision is most easily made outwards, and downwards, and in the transparent margin of the cornea. Three or four successive small incisions will suffice to make the corneal wound equal in size to one made in the ordinary method of extraction, though it is quite in the power of the operator to make the incision as long or short as he pleases. The blades of the scissors while making the successive small incisions should not be closed completely, but only up to the blunt point, the latter resting upon the inner surface of the cornea, so that a good control is obtained over the movements of the eye, while the scissor-blade need not be introduced repeatedly into the anterior chamber. The left eye is operated upon with the left hand; the right with the right.

**Instruments required.**—1. A spring speculum. This speculum keeps the eyelids open without pressing upon the eyeball, *i. e.*, without stretching the conjunctiva so as to impede the movements of the eye; it is made of thin silver wire, to avoid its weight inconveniencing the eye, and it can, by a peculiar contrivance, be opened to a desired extent, and is found very useful wherever—as, for instance, in glaucoma—any undue pressure upon the eye during operation might prove injurious. 2. Forceps for fixing the eyeball, as suggested by Mr. France. 3. A pair of bent, blunt-pointed iris scissors. 4. A curette and scoop.

**Number of Cases.**—Twenty-one eyes were operated upon in this way; 9 times the left, 3 times both, and 6 times the right eye. In several cases ordinary extraction was performed on the fellow eye. 4 times an upper, 6 times a lower, and in the remainder of cases an outer and lower corneal incision was made.

**Ages of the Patients.**—Four between 20 and 50; 11 between 50 and 70; and 3 between 70 and 90.

Vision was improved in all cases, 18 of the 21 eyes being able to read small type. Vision was tested with the spectacles which were supplied to the patients. One patient (a short, stout woman) was attacked by gangrene of one leg on the fifth day after the operation, but the section of the cornea healed well, and normal vision was obtained.—*Med. Times and Gazette*, Oct. 24, 1863.

37. *Production of Lenticular Cataract by the use of Ergot of Rye.*—By Dr. IGNAZ MEIER, of Kronstadt. The consequences of the chronic intoxication by ergot of rye produced by the continued use of impure cereals (ergotismus convulsivus and gangrānosus) are, as is well known, nervous diseases of various kinds, contractures, anæsthesia, and alterations of the sensitive organs. The author has observed that ergotism (raphania) is also the cause of cataract. In 1857 the disease prevailed in the southeastern part of Siebenbürgen, Austria, the uncommon wetness of the summer having produced a great frequency of ergotic rye. Two hundred and eighty-three individuals were attacked in six towns, ninety-eight of whom died. The symptoms of chronic intoxication were in the beginning gastric affections, loss of appetite, nausea, diarrhœa, or constipation, and after that a creeping sensation, and a kind of torpor of the limbs; finally cramps. Permanent contractions of the feet the author saw as the consequence of the latter. The pupils were generally dilated, the nails bluish, the skin yellowish or whitish, the temperature of the surface of the body low. The elimination of worms was not observed, nor the occurrence of abortion in pregnant women. The consecutive diseases were in those more seriously affected, typhus fever, vertigo, amblyopia, or even amaurosis, impairment of hearing, difficulty of speech, insanity or idiocy, epilepsy, periodic fits of laughter, and debility.

The inhabitants of the district live very poorly, and are much devoted to the abuse of alcohol. The majority of the patients were young. In one hundred and thirty-three cases the age was recorded, and it was found that twenty-five were from 1-10, thirty-one from 11-20, thirty-seven from 20-30, sixteen from 31-40, eleven from 41-50, nine from 51-60, four from 61-70 years. Death mostly occurred in younger individuals.

In the year following the epidemic the author was called on by a comparatively large number of individuals with cataract, and came to the conclusion, after careful inquiry, that cataract was frequently consecutive to ergotism. Of twenty-three persons affected, fifteen were females and eight males; three were from 10-20, seventeen from 20-30, and three from 50-60 years. The raphania had lasted in these cases from six weeks to three months. The prevailing symptom had been cramps. In fifteen cases, a headache, lasting for months, or even a year, and combined in some cases with vertigo and noises in the head, had followed the disease, and after it had subsided, or sometimes during its existence, the gradual loss of sight in one, and soon in the second eye, had taken place. The production of cataracts was always slow, and in all cases bilateral. The consistency of the diseased lens was found to be hard two, soft twelve, and semi-fluid nine times. Complications were not present; the optic nerve and retina seemed unaffected, and the operation had mostly a good result.

The author believes to have a right to assume that the cataracts were produced in consequence of the disturbances of nutrition of the crystalline body, caused by the chronic intoxication, or rather on the thereon depending changes in the nervous and vascular system. The symptoms produced by ergotine and the oil contained in the ergot of rye are, according to Professor Schroff (*Pharmacology*, Vienna, 1856, p. 548), nausea, dryness of the throat, loss of appetite, fulness, pain and stupor in the head, dilatation of the pupils, gastralgia, and enteralgia, and diminution in frequency of the pulse. It is rendered probable, the author states, in conclusion, by observations of a less recent date, that ergotine has a peculiar influence on the system of the ciliary nerves, and influences that way the nutrition of the lens, while on the other hand, the convulsive contractions of the eye-muscles, as they were frequently observed by the patients, may have caused a change in the nutrition of the lens, like the cataracts occurring after convulsions in young children.[?]*—Am. Journal of Ophthalmology.*

## MIDWIFERY.

38. *Effects of Secale Cornutum, administered 296 Times in 2000 Labours in Private Practice.*—Dr. JOHN W. BECK read the following paper before the Ulster Medical Society (Feb. 14, 1863):—

Having practised midwifery now for upwards of twenty-seven years, and having registered every case as it occurred for sixteen years and seven months of that period, I find that I have considerably above 2000 cases on my register. Case No. 1000 was delivered by me on the 3d day of August, 1855, and in these 1000 cases I have administered the secale 126 times. Case No. 2000 was delivered by me on the 16th day of July, 1862, less than seven years afterwards, and in this second 1000, I have administered the same drug 170 times; in all, 296 times in 2000 cases. Now, as I know positively that I administered the secale cornutum 296 times, in a practice extending over sixteen years and two months, I presume I was justified in assuming, as I did at our last meeting, that I had administered this agent "about 400 times" in a midwifery practice of upwards of twenty-seven years.

With regard to its effects on the mother—I have registered them in four degrees as follows: First, where it had apparently no effect at all. Second, where it had very little or very doubtful, if any effect. Third, where it had a decided effect, such as was expected and required. And lastly, where the effect was remarkably and perhaps unexpectedly rapid and energetic. Of the first, I find no effect in 15 cases; a very little or doubtful effect in 42; the good effects expected in 223; and an extraordinarily energetic action in 16 cases. Now, as these remarks were written down immediately after each case, I think they are much more to be depended on than any vague general impression, and the result appears very favourable to this drug when administered in appropriate cases.

I need not enter into the consideration of what constitutes an appropriate case for its use, but I may remark that it should never, under any circumstances, be given in the early stage of labour, before the os uteri is well opened, no matter what the pains may appear like. There are few things more annoying to the accoucheur than to be in attendance, for perhaps a day or two, on a patient who considers herself in labour, and who is continually urging him to do something for her; and moreover, bad as this is with a primipara, it is still worse and more embarrassing, when it occurs, as it sometimes will, with the mother of five or six children, who considers herself a judge of labour. In a case like this the os uteri may be little if at all dilated, and the process of dilatation may be so very slow as to be scarcely perceptible, although the pains may be very severe on the patient.

Now, in a case like this, secale should not be given (at this stage, at least), as it will be sure to disappoint you in any good effects you may expect from it, and this warning is the more necessary as it is just such a case as the young practitioner is tempted to give it in. I have given it under such circumstances myself several times, but never with any benefit or satisfaction; and this leads me to remark that perhaps the report of my register would not have been so favourable as it is had it contained a list of all the cases, "about 400," in which I administered it. I had the experience of about ten years of its use to guide me before I commenced this register; and this experience was valuable in enabling me to select the cases in which its use would be most appropriate; notwithstanding all this, however, I observe that in some of the cases where the effects are marked *nil*, the remark is made that it was administered *too soon*; so that I consider this a point worth insisting on. It seems to show that we do not always benefit as fully as we ought by our experience. On the other hand, however, I may remark, as illustrating the benefit of experience as a guide in the selection of cases proper for its administration, that of eight cases that were perforated in the 2000, in only three was secale tried; and these three occur early in the first 1000. I may observe, as a further illustration of the same thing, that the proportion of cases in which it was necessary to use the forceps

after the secalæ, diminishes as the register advances, averaging less in the second 1000 than in the first.

If, on the contrary, the labour be in an advanced stage, the parts soft, moist, and cool, and there exist no great mechanical obstruction to the advance of the fœtus—in short, in any case where it may be desirable to increase the muscular action of the uterus, either before or after parturition—its use is clearly indicated. But where the uterus has already acted energetically and failed to do its work, it is clearly inadmissible, as administering it in this case would be like the overdriving of a tired horse, and mischief must ensue.

For post-partum hemorrhage I again repeat there is no remedy equal to it. The more I have used it, the more dependence I am inclined to place in its use. I have given it 41 times after the birth of the fœtus for hemorrhage, retained placenta (*though I always proceed to remove it by the hand*), or a known lax state of the uterine tissues, tending to hemorrhage, and I find the effects marked good in all these 41 cases. In making this assertion I do not ignore position, pressure, temperature, &c., but my subject is at present the action of secalæ, and not uterine hemorrhage.

With regard to the effects of the secalæ cornutum *on the child*. I have long since come to the conclusion that it has no injurious effect on the child as a poison, and the registry seems to me to confirm this opinion in a remarkable manner. In every case, except one, where the child is marked dead-born, or as having died shortly after birth, there is a perfectly sufficient reason to account for death without the necessity of falling back on the secalæ, and in this one case, though I am not perfectly satisfied as to the cause of its death, I by no means feel inclined to attribute it to the secalæ. There were twenty children at the full term, who were either born dead, or died shortly after birth, after the administration of the secalæ. Of these, eleven were delivered by the forceps and three perforated. This, I presume, is sufficient to account for these fourteen deaths without blaming the secalæ. Of the remaining six, one was putrid when born, another had been turned, the third was a case of placenta prævia, and the child died from hemorrhage, the fourth child was born with a rigid state of the voluntary muscles, and a kind of *rigid* catalepsy, but more like rigor mortis than anything else. The abdomen was enormously distended and tympanitic; it lived an hour, dying out quietly. The fifth child was very large, and the labour was very slow, consequently the pressure was very great and long continued. Twenty-six hours' severe pressure during labour is enough to account for the death of this child. It might have been saved by the forceps, but as a rule I don't use them while the child is making an advance at all. The sixth child, though born after a labour of thirty-five hours, still seemed to me, I must admit, unlike the previous one, to have suffered no pressure sufficient to produce its death. It lived, at least the heart beat, for half an hour, but all the means I could use were unsuccessful in producing even an attempt at respiration, still I am not inclined to attribute this death to any poisonous effect of the secalæ, as I have seen two children besides die out in a very similar manner where no secalæ had been used.

I shall now address myself to a question which has been raised here as to the connection there may be between a lax state of the uterine tissues as promoting or facilitating the absorption of putrid matter through the uterus and the production of puerperal fever; in other words, how far the administration of secalæ may, by promoting the contraction of the uterus, prevent the absorption of its putrid contents, on the absorption of which puerperal fever may be supposed to depend.

There are four deaths of mothers in these 296 cases. The first death occurred in a primipara, aged about 40 years, who was delivered by the forceps of a very large and extremely putrid child. She complained of nothing but prostration, gradually sank into a state of coma, and died in four days. I have no doubt this death was from putrid infection. How far the secalæ tended to prevent its occurrence I can't say. It is marked as having produced very little, if any, effect. The second death was from hemorrhage. It was a case of placenta prævia. I was called by a member of this Society to turn. I did so. She died on the twenty-seventh day after delivery. The third death was that of a patient with

inflammation of the bowels, who was delivered of a four months' fœtus after eleven days' constipation, and died the next day from exhaustion. The fourth death was a primipara, delivered with great difficulty after a twenty hours' labour. The effect of the secale is marked "very good;" but I had evidently despaired of her being able to deliver herself, as the child was born while a messenger was away for the forceps. She died thirteen days afterwards of what is marked "putrid fever." These are all the cases of death, or puerperal fever, that occurred among the cases where secale was given. Whether the evidence educed from them may be *pro* or *con* I don't know, but you may take it *quantum valeat*.

There is just another point I would say a word or two on before concluding, and that is, the proper method of preserving and administering the secale itself. It is a drug the active properties of which are very easily destroyed by damp. It is also very liable to be attacked by an acarus or mite, particularly when damp. It should be procured in substance whole. I have no faith in its powder, or tincture, or extract, or anything else, but itself. After it is procured, it should be carefully dried, and put into a well-stoppered bottle, with a small piece of camphor. If this is done it will keep sound and active for a long time. The camphor seems to have the effect of preserving it from the attacks of the acarus. Again, a new parcel of the drug should never be placed in the bottle along with the old. What remains of the old stock should be taken out, the bottle well washed and dried, and your new lot, well dried over a stove, if possible, placed in it on the top of a little bit of camphor. I believe that it is from neglecting to preserve this valuable drug properly, or from prescribing some of its *fancy* preparations, that it so often disappoints the expectations of some practitioners as to cause them to lose faith in it. I have no hesitation in saying that if you can procure a sound lot of this drug, and preserve it in the way I have directed, you will be very seldom disappointed in its action if administered in the following manner, and I again repeat, *only in appropriate cases*. I know that latterly when it failed in my hands even once, and particularly if twice in succession, I was inclined to look for the cause in the bottle, and more than once found it then in the bad quality of the drug.

The way I administer the drug is as follows: I take two drachms, always fresh powdered as required, and boil it in eight or ten ounces of water for about five minutes. I administer this in three or four doses, *as hot as it can be swallowed*, with from twenty minutes to half an hour between each dose. Generally two or three doses are sufficient to produce all the effects required, sometimes one dose will do. If the first or second dose produces little or no effect, you will generally find the third or fourth will produce as little, and I don't believe it is even useful or necessary to go beyond this two-drachm dose, even when the first or second dose is thrown off, as it sometimes is. When it is thrown off, it is not because it is an emetic in the ordinary sense of that word, though it has been called one. It excites the uterine action, and this action (or rather the stretching of the os uteri caused by this action) excites or produces the emetic effects on the stomach, precisely as occurs in cases when no secale has been given. Some one relates the case of a married woman who always vomited while in coitu, and I had a patient myself whom I could make retch at pleasure by touching the os uteri with the tip of the finger, although she could give no explanation herself as to the cause of the retching, or as to why she retched, yet the result of the touch was invariable. I made the discovery accidentally while examining her by the *tactus eruditus*. I had an opportunity of ascertaining some year or two afterwards that the os uteri had lost this peculiar irritability.

—*Dublin Med. Press*, June 17, 1863.

39. *Treatment of the Vomiting of Pregnancy*.—Prof. GUSTAV BRAUN, of Vienna, remarks that "the treatment of the vomiting of pregnancy is not always crowned with satisfactory results, as indeed the long list of the most various remedies recommended sufficiently proves. The heightened sensitiveness of the stomach renders necessary easily digestible food, such as cold roast poultry, venison, and underdone beef. Good results are generally obtained from the use of seltzer and other aerated waters, and mild or even drastic purgatives; but

the best effect is to be expected from bitter, tonic, antispasmodic remedies. Among these may be mentioned calamus, tincture of ipecacuanha, orange flower water, and assafoetida. Among drinks may be mentioned good old wines, champagne and coffee. Less favourable results are to be expected from opium, morphia, and castoreum. Hohl recommends, when the vomiting depends upon increased secretion of bile, and this is not occasioned by pressure on the liver, the use of bicarbonate of soda and tincture of nux vomica. Where there is inflammatory irritation of the cervix, Negrier thinks good is done by the application of leeches to the vaginal portion; and Bretonneau endeavoured to overcome spasmodic rigidity of the uterus by the application of belladonna ointment. Moriceau thought benefit was derived from the application of a large derivatory to the region of the stomach. Simpson speedily cured a severe case by inhalation of opium. Krause recommends that some lukewarm gruel or very weak green tea should be always kept in readiness, and that some cups of it should be taken quickly in order to provide material for the speedy evacuation of the stomach; he also found creasote combined with steel act very efficaciously.

Ferrand had a satisfactory result in a case of obstinate vomiting, where he employed moxas, and in another where he applied Vienna paste; in the second case, however, chloroform and iodine were also employed. In cases of the kind under consideration, Corvisart, Baudot, Gentles, and others recommend pepsine. They give ten grains of it once a day, or a teaspoonful of the liquor pepticus thrice daily, immediately before meals. Hensch recommends, when vomiting during pregnancy is very obstinate, the use of creasote. In three cases where other means had proved useless, he obtained a cure by means of it; in one case the vomiting ceased after the first dose, in another it was not checked for a month.

From the fear that from the continual vomiting a fatal result might occur, it has been proposed that abortion or premature labour should be artificially induced. Opinions are not unanimous as to the propriety of this proceeding. Cazeaux is opposed to it, because no special time can be fixed when the abortion should be brought about. Villeneuve is in favour of the induction of abortion when the life of the mother or child is seriously endangered. Busch considers abortion admissible in none but extreme cases. Hohl objects to the induction of abortion, because the most severe cases of vomiting very seldom end fatally. Churchill and Lee have by this means obtained very satisfactory results. O. Braun trusts to the expectant method, and recommends abortion only in cases where the life of the mother is seriously endangered.

In the few cases where vomiting depends upon retroversion of the pregnant uterus, it may, though having previously resisted all treatment, be speedily and permanently cured by replacing the womb in its normal position. This is proved by one of my cases, where obstinate vomiting accompanied ante flexion of the pregnant uterus. The observation is so much the more interesting, as no case similar to it has been published. The subject was a woman, twenty-two years of age, of healthy parents, who had menstruated for the first time in her sixteenth year, and in whom menstruation had always observed the normal type. In December, 1862, menstruation ceased, and during this month the patient was in the enjoyment of perfect health. On the 1st of January, 1863, vomiting occurred, which ceased on the following day, but returned a few days afterwards, until, finally, on the 13th of March, it was so violent that she was induced to apply for medical advice. On her admission the patient was found to be of the middle height, her osseous system was slender, and her muscular development proportional. The body was emaciated, the surface of a yellowish-white colour. The breasts, over which the skin was moderately stretched, were firm; the nipples irregular and surrounded by an olive-coloured areola. There were no head symptoms; the thorax was long, of moderate breadth, and well arched; inspiration and expiration were natural. The sounds on auscultation and percussion of the chest were normal; on palpation the lower part of the belly was found distended, and above the symphysis pubis an indeterminate limited tumour was recognized, which could not be closely examined in consequence of the tension of the abdominal walls, but over which percussion was dull. On vaginal examination the opening of the vagina was found moderately

wide, the temperature of the canal was higher than natural, and the secretion from its mucous membrane increased. Through the anterior vaginal wall pressed a round firm tumour, which was movable with difficulty, and behind was continued in the vaginal portion, bent at an angle and directed towards the point of the coccyx. There was constipation, and the patient vomited ten or fifteen times daily, especially when fasting, a greenish mucus in no great quantity; there was no nausea, and the matter was discharged suddenly, as if by erections. The pulse was normal; the patient only complained of occasional dizziness which lasted for one or two minutes, and which came on when she sat up in bed.

An absence of the other symptoms which accompany those diseases, of which vomiting is a symptom, such as acute or chronic gastric catarrh, perforating ulcer, carcinoma of the stomach, paratyphlitis, rendered the diagnosis easy, and the vomiting was accordingly referred to the flexed condition of the pregnant uterus.

Although it was probable, but not certain, that there was an absence of adhesions of the fundus to the posterior wall of the bladder, the prognosis was only doubtful, as when the uterus is replaced it too often again falls over; the prognosis regarding the cessation of the vomiting was dependent upon the greater or less facility of the reposition of the flexed uterus and its retention in its normal situation.

I therefore determined to endeavour to replace the flexed uterus. With this view the urinary bladder was emptied by means of an elastic catheter, and the rectum was cleared out, and as the patient's susceptibility was very inconsiderable, I decided to attempt the replacement of the organ without the help of chloroform. Two pillows were now introduced below the sacrum so as to elevate the pelvic region. The index and middle fingers of the left hand were introduced into the vagina, and pressure was made forwards and upwards. The fundus of the uterus immediately passed upwards, and could be clearly felt through the abdominal parietes. In order to prevent the uterus from falling backwards, the patient was directed to lie upon her face, a position which she kept pretty continuously for several days. The result was most satisfactory. The vomiting, which had occurred six times in the morning of the day when the replacement of the uterus was effected, at once ceased. The patient stated that she experienced instantaneous relief when the replacement of the uterus was effected, and under a nourishing diet she made a rapid and perfect recovery."—*Ed. Med. Journ.*, Feb. 1864, from *Wochenblatt der Zeitschrift der k. k. Gesel. der Aerzte in Wien*, Nos. 47 and 48, 1863.

## HYGIENE.

40. *Practicability of Arresting the Development of Epidemic Diseases by the Use of Anti-zymotic Agents.*—Dr. ROBINSON read a paper on this subject before one of the sections of the British Association for the Advancement of Science, at its meeting at New Castle.

The author commenced by referring to the circumstance of the analogy between many of the phenomena of fevers and other zymotic diseases, and the ordinary process of fermentation having been perceived and recognized by Hippocrates and the oldest writers on medicine. Their idea was that a poisonous ferment, existing in the atmosphere, entered the mass of blood and induced in it a series of changes, which gave rise to the excessive heat, and other peculiarities of that class of diseases—at the present time, this doctrine, modified by the discoveries of Liebig and other chemists, has been adopted by most physicians, and forms the basis of the classification of disease framed by Dr. Farr, and used by the Registrar-General. It thus supposes living germs to exist in the atmosphere, which, when introduced into the body, give rise to a specific and regular series of morbid actions, pursuing a definite course in a definite time, as in

smallpox—those germs being disclosed and multiplied, and producing others capable of reproducing in other bodies the same succession of changes—other lethologists have supposed that the atmospheric poison acts on the blood chemically, by giving rise to what may be termed catalytic actions—while the author is disposed to believe, from what he saw during the cholera epidemic in Newcastle in 1853, that some of these volatile organic matters in the atmosphere are capable of acting on the human body as direct poisons, and that this inanimate volatile poisonous matter also furnishes nutrition to the organic germs suspended in the air. After these preliminary remarks he proceeded to refer briefly to a number of scattered facts, which seemed to him to indicate the existence of a great principle, which might hereafter be found applicable to the prevention or mitigation of epidemic diseases by the direct use of substances capable of arresting the process of morbidic fermentation. He mentioned the following facts as converging to this conclusion: 1. Antiseptic substances, ranging from simple innocuous matters, such as sugar, up to the powerful metallic poisons, such as corrosive sublimate, and forming a very numerous and diversified group, have long been known to be capable of arresting the putrefaction of animal and vegetable structures. 2. The same substances prevent the formation of fungi, as is seen in the use of solutions of metallic salts in the taxidermy in the prevention of dry rot, &c. 3. Many of those agents are also known to arrest at once the process of fermentation, as, for instance, sulphurous acid, and Emi and other chemists have observed under the microscope the rapid stoppage of the vitality of the yeast plant when a solution of arsenious acid was added to the fermenting liquor. 4. The formation of the fungus in and on the plant, which causes the vine disease, is prevented by applying sulphur to the affected vines. 5. In Cornwall it is believed that the arsenical fumes from the tin-calcining furnaces exercised an influence over the potato-plants in the neighbourhood, which preserved them from the disease then affecting other parts of the same county. [A statement to this effect, signed by Captain Charles Thomas, Sen., of Dolwath, and sixteen cottagers, was here read.] 6. It has been found that when a species of fermentation has taken place in the human stomach resulting in the development in large quantities of a minute organism (the *sarcina ventriculi*), this morbid action can be controlled and stopped by the direct anti-zymotic influence of certain salts, such as sulphate of soda, in doses perfectly compatible with the patient's safety. 7. In different parts of the world, among different races, a belief has long existed that certain antiseptic substances, of which arsenic may be taken as the type, are capable of acting as antidotes or preservative and curative agencies against atmospheric and other poisons, and in some cases that popular belief has proved to be well-founded. The experience of the multitude discovered the value of arsenic as a cure for ague long before it was recognized as such by physicians. The arsenical fumes of certain works in Cornwall were stated by the late Dr. Paris to have stopped the ague, previously endemic there. More recently it has been stated that the arsenic eaters of Styria are peculiarly exempt from fevers and other epidemic diseases. And in India the natives have long used arsenic as an antidote for the poison of snakes. Dr. Robinson concluded by expressing a belief that these scattered observations were not only sufficient to justify and necessitate further inquiries in this direction, but seemed in themselves to shadow forth the outline of a great law which might at some future time be productive of immense benefit to mankind.—*Med. Times, and Gaz.*, Sept. 26, 1863.

41. *Iodine as a Deodorizer and Disinfectant.*—Dr. B. W. RICHARDSON, at one of the recent meetings of the British Association for the Advancement of Science, at New Castle, made some remarks on this subject. He said: The iodine should be placed in a common chip-box, such as is employed by pharmacutists, the lid of the box being replaced by a covering of "leno," or the iodine may be placed in the ornamental vases on the mantle-shelf of a room. The smell of iodine could thus be communicated to the air of an apartment, and air so purified was not only fresh and agreeable to the sense of smell, but any organic matters present in it were destroyed. In extreme cases the iodine should be placed on a dish or plate, and the heat of a candle being applied beneath,



the iodine was volatilized, and a room was quickly purified. Dr. Richardson said that in cases of smallpox a knowledge of the facts he had named was most valuable. In rooms occupied by sufferers from this painful disease, organic matters floated largely in the air, rendering the air most offensive. He (Dr. Richardson) had succeeded, in all cases, in rendering such air inodorous by the volatilization of iodine. He had also observed the singular fact that when the air was greatly charged with organic materials, the smell of the iodine was for a long time imperceptible, so that, in truth, the iodine method of purification was also a ready and practical test of the purity of an air. Dr. Richardson thought the iodine plan was quite as effective as the liberation of free ozone—it was, indeed, in principle the same, and was so simple that every person could employ it.—*Med. Times and Gaz.*, Sept. 26, 1863.

42. *Effects of Surat Cotton on the Health of Operatives in Mills.*—Mr. JESSE LEACH, of Lancashire, makes (*Lancet*, Dec. 5, 1863) the following interesting observations on this subject, which are well worth the attention of proprietors of cotton factories in this country.

“When viewing a sunbeam in the comparatively still atmosphere of a room, the air is seen filled with dust and short textile fibres. Placed in the same situation while the room floor is being swept, the sunbeam appears completely glutted with larger quantities of the same floating materials, causing an oppression of the chest and disposition to sneeze. What is manifestly revealed to us through the medium of a sunbeam in a private room more forcibly applies to the rooms of a cotton mill, where the short fibres and dirt of the staple material are effectually separated by the teeth of machinery revolving at a rapid speed.

“It is necessary to say a few words on the cotton staple to correctly estimate the amount of dust in different samples of cotton. Whatever name it bears, much loss is sustained during the processes of manufacture: the American the least; the East Indian or Surat the most. Twenty-five per cent. is an average loss during the manufacture of Surat. The greater amount of loss sustained the more damaging to the constitutions of the operatives employed. The higher the rooms of a mill and the better their ventilation, the more harmless to the health of the workers; the lower the rooms of a mill and the more imperfect their ventilation, the greater the amount and extent of bodily sufferings of the mill operatives. The following remarks more particularly apply to operatives working in low, narrow, ill-ventilated rooms, where Surat cotton is used.

“The first process the raw cotton undergoes is the mixing of one staple with another. Much dirt and dust is disengaged in this operation. The respiration is affected from the dust irritating the respiratory passages of the mixers, and coughing and sneezing are the frequent consequences, which disengage from the bronchial membrane a quantity of slaty-coloured expectoration, which, when placed under the microscope, is seen to consist of very fine short fibres of cotton in air-bubbles and mucus. The sneezing is occasioned by the same material irritating the olfactory nerves during nasal breathing. The arms and hands of mixers are not unfrequently affected with a cutaneous rash, much resembling nettle rash. This may partly arise from fine sand and short fibres of cotton destroying the epidermis, and irritating by their presence the true skin. Their complexion is pale and sickly. After passing from the mixers, the cotton passes through the hands of the willowers and scutchers. When ventilation is not assisted by ventilating chimneys of tin or wood, which take off more effectually the dense atmosphere with which these rooms are charged, the willowers and scutchers suffer in the same manner as the cotton mixers. From the immense velocity of the machines used, the revolutions being 1500 per minute, the quantity of short fibres of cotton set afloat in these rooms is very great. It would be difficult to recognize a man at twelve yards' distance, from the density of floating fibres, modified, of course, very much by a wet or dry day. The strippers, grinders, and card-room hands are engaged in the next process of cotton manufacture. They mostly suffer from a spasmodic cough, sore throat, expectoration of blood, pneumonia, and confirmed asthma, with oppression of the chest. Various expedients are resorted to to liberate the small cotton fibres by expectoration from the pulmonary air-cells: tobacco chewing, the use of gin,

and smoking out of the mill are very commonly habitual. The tectotals use tea and coffee in lieu of these for the same purpose. A carder seldom lives in a card-room beyond forty years of age; many have to give up working much younger. Forty-five to fifty years are their average ages. The next room the cotton comes to is the drawing and roving room. Drawers and rovers suffer very little from the small floating cotton fibre. The tonsils are sometimes enlarged, and the pharynx and larynx much injected. They suffer so little inconvenience from these conditions that an ocular demonstration is necessary to convince one's self of their presence. There is comparatively much less floating short cotton fibres in these and the next rooms. The mule and throstle rooms are the next, where cotton assumes the cotton-thread. Their temperature is much higher, ranging from 75° to 90° Fahr. The light is freely admitted through numerous lofty windows. A high temperature and much light are requisite for the spinning of the cotton-thread. The hands in these rooms look pale and sickly; but are lively, cheerful, and active. They suffer much from facial tic and toothache, slight colds, and sore throat during cold and damp weather, probably arising from their sudden transition from the heated atmosphere in which they work to a raw cold one outside the mill on their way to and from their meals. The next class of workers are the packers occupied in the warehouses. They are generally very healthy, active, and much better looking. These rooms are of a moderate temperature, and very well ventilated, which account for the improved appearance and general health of the men employed therein.

"I have now passed through the general affections of operatives engaged in the various processes necessary to produce the cotton-thread from Surat cotton, and shown, as I trust, plainly that these affections arise in a great measure from the circumstance that Surat cotton has a much shorter fibre than any other kind of cotton; that its manufacture involves on an average twenty-five per cent. of loss to the spinners; that the teeth of the machines through which it has to be passed are of necessity set closer for the better working of it; and that the health of the operatives employed suffers much more, from its short fibres irritating the epithelial mucous surfaces of the air-passages during inspiration, whether nasal or vocal; and that the only remedy is more effectual ventilation in the mixing, scutching, carding, and drawing rooms. Beyond these rooms I have not observed a greater amount of suffering than from working any other class of cotton. Lastly, whatever principle of ventilation be adopted, the lightness and shortness of the fibre of Surat cotton are so remarkable that a much greater loss than twenty-five per cent. would be observable if increased ventilation be much applied; but this loss would be amply compensated for by a better quality of cotton-thread, bearing an increased marketable value. Many wealthy manufacturers, compelled to use Surat cotton since the cotton famine, have applied increased ventilation to free the mixing and scutching rooms from the additional dust attending its use, and have at considerable expense brought into use powerful fans, more elevated rooms, and other appliances; and in every instance the factory operatives enjoy comparative impunity from what remains of the floating dust. The use of better gins would free the raw cotton of Surat from much of its present dirt, and our East Indian authorities possess the power of enforcing them, which would enhance the value of the cotton, and confer an inestimable boon on the Lancashire hive of wealth and industry."

43. *Dangers of Slaughtering Diseased Cattle.*—Prof. JOHN GAMGEE, of Edinburgh, has published (*Lancet*, Feb. 13, 1864) the following important observations on this subject:—

"On the 22d of October, 1863, a bull was taken ill on a farm and in a county which I decline to name. My reasons for not mentioning the place are, that every effort has been made to keep the secret, as in a host of similar cases, and it will serve no purpose whatever to expose those who, in ignorance and in consequence of the lax state of our laws on this subject, acted as their neighbours would have done. A labourer on the farm, who had been formerly a butcher, volunteered to slaughter the sick bull, that its carcase might be saved for the butcher's stall. Unfortunately, the poor man had previously injured his hand with a spade, and he performed his task without due regard to the condition of

his wound. It is said that the bull was dying from pleuro-pneumonia, but others declare the disease was of too rapid a type to be the very prevalent lung complaint. Certain it is that four pigs died after eating part of the viscera of the bull, and two dogs nearly lost their lives in the same way.

"The bull was disposed of to a butcher for the sum of £5, and after this, not only was it seen that the pigs and dogs had been injured by eating the flesh, but the labourer suffered intense pain in his hand, was seized with severe febrile symptoms, and died on the fourth day after dressing the bull.

"I am favoured by a surgeon with the following report of the case:—

"I saw the man for the first time on the second day before his death. I then found a ragged wound, about an inch long, nearly dividing the tendon of the back of the second finger of the right hand. The edges of the wound, for about three-eighths of an inch all round, were very much swollen and dark-coloured; in fact, the wound looked like an opening made with a blunt instrument. The swelling was well defined; there was also severe cellular inflammation of the arm to the elbow, with the usual boggy feel all over, from the back of the hand upward. Fever and the usual symptoms of severe cellular inflammation prevailed, notwithstanding tonics and stimulants. The man sank rapidly (the fever having turned to typhoid), and died on the second morning after I saw him. He was much addicted to habits of intemperance."

"Many of the readers of the *Lancet* may suppose that this is a solitary case, or at all events a rare one. The usual question may be asked, Why should I, as a surgeon of so many years' experience, not have heard of or seen such cases? To my own knowledge, four other men have died, presenting symptoms such as the above, under similar circumstances and in the same county, during the last four years. Another man, a butcher, nearly lost his life, and the surgeon who attended him asked him what he had done with the diseased cattle he had dressed. This question was asked as the surgeon feared that the carcasses were at that time being cut up in the town where they had been slaughtered; but he was somewhat consoled by the usual reply, 'They've been sent to London.'

"During the past year the attention of a number of gentlemen has been directed to cases of serious illness and death in various parts of the country. A landed proprietor wrote me concerning an instance in East Lothian. An animal was slaughtered, packed in a basket, and sent either to Edinburgh or London. After the carcase had been dispatched, the pigs were taken ill, and several died; they had eaten of the animal's entrails. The man who dressed the bullock nearly lost his life, and only recovered after nearly losing his eyesight. Some liquid from the thorax was splashed against this man's face, and he suffered severely from inflammation of the face and trunk. His eyes were most seriously affected, and vision has only been restored in one.

"In the Edinburgh slaughter-houses similar accidents have been witnessed, though every effort is made to conceal the truth; and one case which occurred in 1863, was identical with the one that occurred in East Lothian. During the outbreak of malignant anthrax in Lincolnshire last autumn a shepherd scratched his arm whilst dressing a sheep, and he very nearly lost his life.

"It is now about fourteen years since I first began to agitate the question of cattle disease in relation to the public health. During that time I have reported outbreaks of anthrax and of splenic apoplexy, and have repeatedly drawn attention to the deaths amongst pigs, dogs, ferrets, &c., from eating the viscera of diseased cattle slaughtered. I have striven, as best I could, to specify the form of disease communicable to man, and which renders the flesh of such animals unwholesome; and my opinion, based on a very careful consideration of the whole subject, is, that the public health is materially affected by the wholesale slaughter of diseased animals as human food. Several years ago I declared that it was impossible that human beings were not frequently injured by the eating of the flesh of cattle that had died of splenic apoplexy in this country; and the reason why cases have not been published is, that the carcasses have been sent to large cities, where they would not be distinguished from the carcasses of perfectly healthy animals, and the evil results of eating the poisonous flesh could not be distinguished from any ordinary case of dysentery or

typhus. The best proof of defective observation on these subjects is afforded us by the trichinous disease, of which not a single fatal case has been recorded in this country, but many abroad. That the disease is often amongst us is certain, and the infant that died in Paisley last year, as the result of eating 'measly (?) pork,' undoubtedly, in my mind, succumbed to trichinous infection.

"Knowledge gathers slowly, and medical men must proceed with prudence in drawing inferences from cases observed; but I hold that they have hesitated too much and too long in raising their voices against the filthy and demoralising practice of slaughtering diseased animals as human food. With a proper organization, I will engage to reduce the mortality in the London dairies from forty and fifty per cent. per annum to four and five. This would at once prevent the sale of several thousand diseased cows as human food in the metropolis alone. Would not such work be better worth paying for than inspection of markets? and is it not worthy of the strongest recommendation on the ground of economy, if not on that of saving human life? We 'strain at a gnat and swallow a camel' when we condemn the French for their vivisections, and allow our population to be cut down in thousands by painful and preventable diseases. On no ground can we defend the slaughter of diseased cattle, and medical officers of health need not wish to be fortified by evidence of cases of death in man from eating diseased meat in order to interfere vigorously with the traffic in diseased animals. That traffic is the most potent cause of disease in animals themselves, and unless checked our stockowners will suffer even more in the future than they have in the past. We cannot keep pace with the demand for meat, and prices are ruling higher every year. To secure an adequate supply of wholesome animal food we must devote ourselves to the prevention of disease amongst animals, and no greater blunder was ever committed than that of declaring that our poor must starve if we condemn all the diseased animals sent to the butcher. The poor may console themselves a little by the reflection that it is the finest cattle in the best condition that usually die of splenic apoplexy, and the accidents which befell the pigs and ferrets from this cause are more likely to be witnessed in the homes of the wealthy than in those of people who cannot afford to pay the highest market price for beef."

---

#### MEDICAL JURISPRUDENCE AND TOXICOLOGY.

44. *Etherization followed by Death.*—At the meeting of the Imperial Society of Medicine in Lyons, on July 20, M. CHASSAGNY communicated the case of a lady aged 40, to whom ether was administered previously to the removal of an urethral polypus and two sebaceous cystic tumours on the head. Thirty grammes of ether (rather less than an apothecary's ounce) were used; but the anæsthesia produced was incomplete, and the patient was aware that the operations were being performed. The administration of the anæsthetic was not pushed further, because the stage of excitement did not manifest itself, and because, on the contrary, general coldness and slowness of the pulse were present. On the completion of the operation, which occupied a quarter of an hour, vomiting set in; the coldness increased, and was accompanied by clammy sweats; and the patient had convulsions, attended with foaming at the mouth. The attack passed away in a few moments, but soon returned with equal intensity. After the fourth attack, the patient died. M. Chassagny considered that the patient had died of eclampsia induced by etherization, which was thus the indirect cause of death. She had previously been subject to epileptic vertigo.—*British Med. Journ., from Gaz. Méd. de Lyon, 16 October, 1864.*

## AMERICAN INTELLIGENCE.

## ORIGINAL COMMUNICATIONS.

*Ligature of the Femoral Artery.* By PHILIP S. WALES, M. D., Surgeon U. S. N.

James O'Neal, aged 30, born in England, was sent to the hospital March 28th, 1863, with a gunshot wound of the left thigh, received under the following circumstances. He was one of the crew of the prize steamer "Nicholas the First." When our men boarded her this individual, drunk, it appears, seized a keg of powder and rushed towards the furnaces to throw it in; providentially an officer saw him before the horrible deed could be executed, and brought him to the deck with his revolver. The ball entered the left thigh at its inner aspect at the junction of the middle and lower thirds, taking a slightly oblique course downwards and outwards, passed behind the femur through the limb, and emerged at the outer side. At the time there was a profuse arterial hemorrhage, which the medical officers who first saw him controlled with a tourniquet. Ten days elapsed before he arrived at the hospital. In the mean time an enormous diffused traumatic aneurism had developed itself, occupying the lower two-thirds of the thigh, and its pulsation could be felt everywhere over this portion of the limb, except a narrow strip of surface extending along its outer side. The patient complained of slight pain; but what gave him most concern was the great sensation of weakness which, he said, annoyed him more than anything else. The aneurismal bruit was distinctly marked and heard immediately after the impulse is felt.

*April 2.* We performed the operation of ligature of the femoral in its upper third, being kindly assisted by Surgeon Sharp and Assistant Surgeons Burnett and Winslow, to all of whom I am particularly obliged for the valuable assistance rendered in this difficult case.

From the enormous swelling of the limb from the knee to the groin there were no guides to the artery, and the depth at which we expected to find it induced us to make an ample incision ( $3\frac{1}{4}$  inches) in its supposed course; soon its pulsation was felt leading directly to the sheath, which was slit up upon the grooved director about half an inch, giving vent to about a drachm of dark blood; the artery needle, armed with a waxed thread, was then at once passed around it from within outwards. The thread was knotted and all pulsation ceased in the tumour; the edges of the wound were then slightly brought together by compresses and bandages, and cold water dressings applied. After being made comfortable in bed, the patient soon rallied from the immediate effects of the anæsthetic—chloroform—and fell in a quiet sleep from which he awoke several hours afterwards much refreshed, and expressing himself as feeling free from any uneasiness in the limb.

*3d.* This morning the patient feels very comfortable, having obtained a good night's rest from a full dose of solution of sulphate of morphia. The temperature of the left leg is good, the femoral of the groin pulsates slightly

—69 a minute. Has not that annoying sensation of weakness before complained of, and there is less tumefaction of the thigh.

4th. Doing well. Took another dose of morphia yesterday evening, producing a good sleep during the night; complains of slight pain in the leg; wound of operation suppurating slightly; slight pulsation in the tumour can be felt when the hand is pressed forcibly against it. Continued water dressing.

5th. Decidedly cheerful and improving; bowels have been moved freely, and his appetite, which since he was shot has been entirely absent, begins to improve; he says he wants something to eat; a trifling pain shoots from his foot towards the point of ligation. Wound discharging freely. Continue same dressings, and give chicken soup.

6th. Now sleeps well at night without an opiate; bowels regular, appetite improving, and is entirely free from pain in the limb. All pulsation has disappeared from the limb. Continued dressings and diet as usual.

7th. Has had severe pain in the left ankle since morning. Continued same means.

8th. Changed the position of the limb, removing all pressure from the outer malleolus with entire relief to the pain. A distinct pulsation can be felt in the posterior tibial artery to-day. Wound still suppurating. Continue means in all respects as yesterday.

9th. Doing well. Complains of some uneasiness in the limb, which I suspect results from the restrained position in which it is kept.

11th. Has continued to improve; the upper part of the incision has healed from the bottom almost to the surface, with slight discharge of pus, and the limb nearly regained its normal size.

19th. Wound nearly all healed, ligation still firm; very slight discharge of pus; appetite good, bowels regular. From the great diminution in the original size of the thigh, the part where the aneurism was situated conveys the sensation of great solidity, and is about the same diameter as the upper part of the thigh.

May 1. The ligature came away to-day, and there has been a gradual improvement in the condition of the patient; his general health good, and all the functions going on normally.

30th. Was discharged from the hospital cured, and sent to the guard ship for safe keeping, to be disposed of by the naval authorities.

---

*Poisoning from the Datura Stramonium in which Recovery followed the Use of Opium.* By A. PAUL TURNER, M. D., one of the Physicians to the Howard Hospital.

Chas. McK—, aged 10 years, and his brother aged 8, both bright and active children, enjoying the best of health, left their home at 10½ A.M., in company with several children younger than themselves, upon an excursion to some vacant lots situated at the distance of over a mile from their place of residence, from whence they returned about 3 P.M., and asked for their dinner as if nothing unusual had occurred. While eating, the mother observed a peculiar uneasiness and a tendency to wander from the subject upon which they were being questioned, and she asked their comrades if they had not been using intoxicating spirits; but were stoutly assured that such was not the case. The two children were then unable to walk, which so alarmed those about that the family physician was sent for. After waiting for him over half an hour, the symptoms becoming more alarming, I was summoned, and reached the house at 4.30 P. M. I found

the children lying upon their backs, their eyelids slightly drooping, corneæ very bright, pupils widely dilated and insensible to the light; conjunctiva injected; face deeply suffused and of a dark crimson colour; an apparent difficulty in breathing; inability to articulate, and in a state of complete insensibility, broken occasionally by a paroxysm, during which they would utter some indistinct sounds and throw the hands about the head as if attempting to ward off some threatening evil; this would soon subside into a semi-comatose state, not the stupidity, however, which results from opium or its preparations, but rather a state of intense apathy, which persisted for a few seconds, when the delirium would again recur unless sooner produced by the efforts of those about to render assistance, when the state of excitement assumed such a form and violence as to render necessary a certain amount of restraint to prevent escape from the imaginary object which engaged the attention; occasionally they would grasp at something in the space in front, appear as if he possessed or rejected it, then turn the head as if called by a voice beside them and attempt to speak to it, the sound resembling a squeak more than the natural tone of voice. Neither of them was able to support himself alone upon his feet, but would take a step or two with a staggering gait, falling to the floor as if intoxicated or in a state of complete exhaustion. During the period of excitement the extremities were in constant motion, co-ordinate only so far as they related to the corresponding limb, yet wanting in that harmony of action which is found in those movements of a higher order, as standing in the erect posture, walking, etc. etc.; there was constant action of the fingers as if attempting to pick something from the person or the bedclothes; at times they would burst into a paroxysm of excessive laughter, which would persist some seconds, then suddenly cease; at times they would have a smile so quiet and pleasant that we could not but contrast it with the highly excited state previously witnessed. The flushed face; the bright eye; dilated pupil, and the peculiar mental state, led me to instantly surmise that the poison was of the order Solanaceæ, and on closely interrogating those who accompanied them, some unripe capsules of the *Datura stramonium* were produced, with the assurance that all had eaten of the seed which was beginning to assume the brown colour of maturity, and that the two children now so violently affected, had first found them palatable, and not only began to use them first, but even ate them while returning home. It may not be out of place here to mention that in this half-ripe state, the seed do not give the decided taste of the more mature growth, and are not so unpalatable as to cause children to refuse them.

To each was administered an emetic of sulphate of zinc gr. v, and pul. ipecac. gr. x, in the hope that the remains of any unabsorbed material in the stomach might be removed; their jaws being closed, and as they could not be made to comprehend our object, there was no little difficulty in causing them to swallow. Emesis in a short time followed, and among the remains of the undigested food eaten a little while before was found a quantity of the seed, which probably amounted to as much as half a drachm. As there could now be no doubt as to the nature of the article used, cold water effusions were employed, hoping to induce reaction against the tendency to depression of the vital powers by the poison. Having seen reports of cases wherein opium or some of its compounds had been used with the happiest results in counteracting the effects of belladonna, and from the similarity of the action of stramonium and that of

other species of the same order, it at once occurred that opium might not be inappropriate in the present instance, and accordingly to each of the two children was given tinct. opii gtt. viij.

5.15 P. M. I was now joined by Dr. J. H. Slack, who advised a repetition of the emetic of sulphate of zinc, which was administered without immediate result, and the tinct. of opium was again given to each in the same quantity. Twenty minutes later no marked effect having followed the laudanum, another dose of ten drops was given; they are now lying more quiet; dilatation and immobility of the pupils; general appearance unchanged; still insensible, and even when loudly spoken to the eyes would scarcely be turned towards the speaker; still continue to pick at the bedclothes and grasp at the imaginary objects about them, suddenly move as if spoken to and apparently attempt to articulate some reply, the limbs being at the same time actively moved, not spasmodically, however, but as if attempting to perform some action which failed for want of a proper guiding influence.

6 P. M. They appear to lie more quiet now, and the iris, which is taken as the index by which the relative effects of the two substances are to be estimated, still remains dilated and uninfluenced when exposed to the action of the light; are not so frequently excited, though at times laugh immoderately; surface of the body continues very red, though less so than a short time previously. Tinct. opii gtt. v repeated to each; directions were given that the children be allowed to remain on the floor, the clothing to be removed or loosened so much as to permit free circulation and unimpeded movements of respiration.

9 P. M. Both children are held in a sitting posture upon the knee of an attendant, whose attention is fully directed towards preventing them from falling during the periods of excitement, which are less violent and appear to be more in the direction of intelligence. The skin remains as from the beginning, somewhat relaxed though not moist, and very slightly elevated in temperature; pulse 95, compressible and full in volume, and has varied but little from this since the commencement of the symptoms, even during the paroxysmal state, and is then to be attributed, perhaps, to the muscular movements rather than direct action upon the heart of the substance whose effects we are endeavouring to counteract. It is now seen that the pupils are less dilated, though very slightly influenced by the light; the children are able to articulate, but cannot be made to comprehend questions proposed them, and occasionally laugh or attempt to sing; on the whole, their condition may be said to be much improved, but as the effects of the datura are yet so prominent five drops more of the opiate are ordered, with directions that the same quantity be again repeated in 30 minutes.

Wednesday, 9 A. M. The youngest child was now quietly sleeping, but could be awakened without difficulty. During the night ten drops more of the laudanum had been given to each; the eldest was quietly lying upon the bed; pupils more contracted than when last seen, and became more so when exposed to a strong light; skin moist and cool; has lost that efflorescent appearance which was before so strongly apparent; pulse 86; respiration normal; responds yes and no to necessary inquiries, but does not complain or attempt to converse; is wholly uninterested in all that passes about him, and as he lies on his side smiles as if amused at some ludicrous idea passing in the mind; at intervals has slept during the night, though frequently disturbed by illusions. As the symptoms of the stramonium were now so little preponderant as to give no uneasiness as to



the immediate result, all medicinal interference was laid aside, and rest in a darkened room with perfect quiet was enjoined for the day.

6 P. M. Much improved since last visit; pupils nearly normal in diameter, but not quite as susceptible to light as desired; complains of slight dryness of the fauces; some vertigo with occasional delirium through the day; and the eldest, when asked in reference to his thoughts, replied that he felt as if dreaming, though not asleep. When seen the next day there had been a free evacuation of the bowels with much apparent benefit; they were playing about the door without the least abnormal symptom; conversed with freedom, and were perfectly rational.

Though the above details refer to but two cases, yet there were five others, younger, who had partaken of the seed, and in whom dilatation and immobility of the pupils was so manifest that emesis was induced in each, and they were kept under close observation for any signs which might demand attention, but as vomiting had been so early produced, nothing of the kind occurred.

When we consider the violence of the symptoms, the rapidity with which they became evident, and the quantity of opium used in a few hours, we cannot but help drawing the inference that there must have existed some antagonism between the two.

---

#### DOMESTIC SUMMARY.

*Lithotomy in Young Persons.*—Dr. J. MASON WARREN has communicated to the Boston Society for Medical Improvement two cases of the lithotomy in young persons, with some interesting remarks on operations for stone in the bladder.

In the first case the ordinary bilateral operation was performed, in the second some novel procedures were adopted, and we therefore subjoin Dr. W.'s account of it.

Jacob Banks, æt. 13, entered the Massachusetts General Hospital in March, 1863, on account of great suffering in the region of the bladder, accompanied by incontinence of urine. Two years before, he noticed an occasional difficulty in passing water; at times a sudden stoppage of the stream occurred, and the urine was now and then a little bloody. Of late the symptoms had become more urgent and the pain constant, so as to confine him to his bed. At this time the urine dribbled away, and the skin of the penis, scrotum and thighs had become red and irritated by it. The prepuce, as in the last case, was much elongated.

On introducing a sound, the instrument encountered much resistance at the neck of the bladder, and at once came in contact with a stone. The bladder was quite empty of urine, and the calculus meeting the sound at different points, while enveloped in the mucous folds, gave the impression of the existence of two or more stones.

It was decided to perform lithotomy, first relieving the external irritation by cleanliness and suitable dressings, and then evacuating the bowels by a dose of castor oil, followed by an enema, on the morning fixed for the operation.

The operation which was performed combined some of the more important features both of the median and bi-lateral methods, and seems to offer some advantages over either. A sound of medium size was passed into the bladder, the meatus urinarius, which had become very much contracted, being first slightly enlarged by the knife. The skin was then divided in the median raphe, and the dissection continued in the same line until the membranous part of the urethra was exposed. This was next opened, and the attempt made to introduce the double "lithotome caché" of Dupuytren. Owing to the unyielding

condition of the neck of the bladder, the lithotome could not readily be passed in; a probe-pointed bistoury was therefore substituted for it, and the prostate divided on both sides. The finger now entered with ease, and a large stone was felt very high up in the bladder. Attempts were made to extract it with a long pair of polypus forceps, and then with the ordinary lithotomy forceps, but without success, owing to the great size of the stone; the cut in the prostate was therefore enlarged, and the attempts at extraction renewed, but still unsuccessfully. As it was not deemed safe to enlarge the incision in the prostate further with the knife, the two forefingers were introduced, back to back, and the substance of the gland slightly torn. A larger pair of forceps was then passed in, and by embracing the whole stone within its jaws it was extracted without further difficulty. A bit of catheter was placed in the wound, and the patient sent back to bed.

On the ninth day the urine began to pass through the urethra, and from the twelfth day none escaped by the wound. At the end of three weeks the patient was discharged, with the external wound nearly healed, and free from all symptoms of stone.

The calculus, which appeared to be composed of the triple phosphate of magnesia and ammonia, was large and very rough; it measured three and a half inches in its longest circumference, and two and three-quarters in the shortest; its weight was half an ounce.

Dr. W. said that he was led to perform the operation in the manner related, viz., by making an incision through the skin in the median raphé, instead of the cross cut, employed by Dupuytren, from having observed how easily these parts could be dilated in the incisions practised in perineal section for the division of strictures, in some cases impassable by the smallest sound. In these cases, after cutting through a deep perineum filled with inflammatory exudation, it is often found necessary to exercise much patience and to spend much time in tracing the urethra beyond the stricture. Having had occasion, during the past few years, to do a number of these operations, most of them entirely without any guide, he was led to the reflection that it would be very easy in this way to perform the operation of lithotomy when the operator is guided by the presence of a large staff in the urethra. When the operation by this median section is performed deliberately, the operator has the parts divided freely open to the view, which is not the case in Dupuytren's operation, which has to be performed mainly by the sense of touch. By this method, also, the vessels are much less likely to be wounded than in the common operation. Although different kinds of operations must of necessity be practised to suit different cases, the present method would seem to be the most direct and natural one for arriving at the bladder. Since performing it, Dr. W. said he had found that a similar operation had been suggested by Mr. Erichsen, who had not, however, performed it upon the living subject. Mr. Allarton's and Mr. Beaumont's operations, although done in the median line, are essentially different.

Dr. W. stated that he had now operated upon about thirty cases of stone in the bladder, and thus far had been so fortunate as not to lose a single patient. Most of the operations had been done by the crushing method, which he had found applicable to all cases except in very young persons; the oxalate of lime, or "mulberry calculus," when in an adult patient, and of a moderate size, not being an objection on account of its hardness. In young subjects, on account of the small size of the urethra, the danger of its obstruction by fragments, and the comparative safety of lithotomy, he had generally performed lithotomy by the bi-lateral section, and the recoveries, without exception, have been safe and speedy.—*Boston Med. and Surg. Journ.*, March 10, 1864.

*Ligature of the Common Carotid.*—Prof. C. A. PORE, of St. Louis, records (*St. Louis Med. and Surg. Journ.*, January, and February, 1864) the following interesting case of this:—

"The late General Bayard, who was killed at the battle of Fredericksburg, received an arrow-shot wound in the left upper jaw, on the 11th July, 1860, whilst a lieutenant in New Mexico, in a skirmish with the Indians. The iron point, spear shaped, and two and a half inches long, with a small neck for the

attachment of the wooden shaft, was driven with force, entering a little below the middle of the orbit, and with a slight obliquity backward. The surgeon of the post immediately endeavoured to extract the foreign body. At first it was hoped that this might be accomplished by traction upon the arrow itself, but this was thereby only separated from the iron point, which remained firmly impacted in the bone. Different forceps were then resorted to, and after a trial of two hours the effort was abandoned.

"The absence of suitable instruments, the slight hold which could be obtained on the offending body, as the small neck was all that could be seized, and above all the firm impaction, sufficiently account for the failure of extraction. Slight hemorrhages from the corresponding nostril followed within the subsequent four weeks, and on arriving at St. Joseph, a more serious one occurred.

"The patient reached St. Louis five weeks after the reception of his wound. There was some tumefaction of the left side of his face. The wound at the time had skinned over, so that no foreign substance could be seen, but on gentle pressure with the finger, a hard point was perceptible beneath the integument. There was a muco-purulent discharge still issuing from the nostril, proceeding doubtless from the antrum. On incising the imperfect cicatrix, I felt the projecting neck, and supposing that the arrow point, after so long a time, might be somewhat loosened by the efforts of the organism, I attempted its extraction with the dressing forceps of the pocket case, but found them wholly inadequate. I at once supplied myself with instruments of various kinds, and with a powerful forceps succeeded in one or two efforts in extracting the offending body. This was followed by a troublesome bleeding, both from the nostril and the external wound. By rest, opium, cold, plugging and pressure, this was duly arrested. Several slighter hemorrhages subsequently occurred, but they gave rise to no uneasiness.

"The case now progressed favourably, and the patient was able to get about the streets. He walked to my office, and complained of some inability to separate the jaws, a difficulty, by the way, which had existed all along; I directed him to use gentle and gradual efforts at opening the mouth. In less than an hour his troubles recommenced. The whole cheek and jaw became hot, swollen, and painful. Fever, with renewed hemorrhage, set in, and caused me much anxiety. The same means of arrest first tried did not avail. Extensive extravasation of blood took place, and in order to relieve the pain, tension, and possible sloughing, I deemed it proper to make free counter openings, both in the mouth and on the cheek and neck. From these, large grumous clots were turned out, and through the inner opening the finger's point could be carried round the almost denuded bone, and lodged high up in the pterygoid fossa. The hemorrhage continuing with various and delusive intermissions, the case became critical. Finally, for three successive nights, these came on regularly at midnight, and were copious and exhaustive. From such repeated losses of blood, the patient had now become reduced to the lowest degree, when the further issue of a few ounces more might have turned the scale against him. I then determined to tie the carotid. This was done on the night of the 16th of September, more than two months after the reception of the wound. Such was the extreme condition of the patient that he fainted during the operation, although in a recumbent position. The operation was a delicate and difficult one, as the parts were very much swollen and altered by sanguineous extravasation and inflammatory effusion, and the incision being correspondingly deep, the effect of artificial light in such cases, at all times bad, was only the worse—for whilst the surface of the wound was well lighted, the sharp, deep shadow rendered its depth almost invisible. The touch, therefore, superseded sight. There was no more hemorrhage. Opium and nutritious ingesta were freely given, and the patient continued to do well. From the thoroughly anæmic state, and the effects of interruption of the cerebral circulation, caused by the ligature, the patient's mind was somewhat impaired, and I feared some altered nutrition or softening of the brain. These symptoms, however, gradually yielded, and after several weeks he was again up and about. Being rather impatient and self-willed, he went out before I deemed it prudent for him to do so. The ligature was slow in coming away, and for some weeks after its fall, a small fistulous opening re-

mained. The lieutenant now left St. Louis for West Point, to which place he was assigned for duty. When on a visit to his family in New Jersey, and traveling by railroad at night between New York and Philadelphia, after much bodily fatigue, a further hemorrhage occurred from the still unclosed fistula of the cervical wound. By rest and moderate pressure this was relieved. This bleeding was the last—the wound healed and the patient recovered his usual health. There always remained, however, an unpleasant fullness of the affected cheek and masseteric portion of the face."

*Treatment of Gunshot and Penetrating Wounds of Chest and Abdomen by Hermetically Sealing.*—B. HOWARD, M. D., Ass. Surg. U. S. A., advocates (*Amer. Med. Times*, vol. vii., No. 14) the treatment of gunshot wounds of the chest and abdomen by a plan which he calls "hermetically sealing." The following is his description of this mode of treatment:—

"All accessible foreign bodies having been removed, introduce the point of a sharp-pointed bistoury perpendicularly to the surface just beyond the contused portion, and, with a sawing motion, pare the entire circumference of the wound, converting it into a simple incised wound of an elliptical form. Dissect away all the injured parts down to the ribs, then bring the edges of the wound together with silver sutures, deeply inserted, at not more than a quarter of an inch apart; secure them by twisting the ends, which are then cut off short and turned down out of the way. Carefully dry the surface, and with a camel's-hair pencil apply a free coating of collodion over the wound; let it dry, and repeat it at discretion.

"For greater security, shreds of charpie may now be arranged crosswise over the wound, after the manner of warp and woof; saturate it with collodion, and when dry repeat the process, until the wound is securely cemented over. As a still greater protection, a dossil of lint may then be placed over the part and retained with adhesive straps.

"If there be a tendency to undue heat in the part, it may be kept down with cold affusion; should any loosening of the dressing occur, an additional coating of collodion may be applied. The sutures must not be removed until healing by first intention is complete.

"Should suppuration occur, so as to occasion distressing dyspnoea, proceed to treat it in all respects as a case of empyema, introducing the trocar at the most dependent point, and taking special care to avoid the admission of air."

Deputy Inspector-General T. LONGMORE, Professor of Military Surgery in the British Army Medical School at Netley, and one of the most experienced and learned military surgeons of the day, makes (*Lancet*, Jan. 2d, 1864) the following very interesting remarks on this mode of treatment:—

"In considering the proposed treatment, what first attracts notice is the absence of any limitations in its application, and the assumption that healing of the wound by the first intention can be secured in all such cases. It is the unqualified manner in which this plan of treatment is put forth that makes me think it important to notice it; for if put into practice as described, I feel certain it must lead not only to much disappointment, but occasionally do considerable harm. The wounds of the chest to which it is applied are simply designated 'penetrating wounds;' but it is obvious from Dr. Howard's remarks that he includes perforating wounds, and indeed all wounds in which the cavity of the chest is opened, by gunshot, with or without wound of the lung. As I have already explained, the variations which are constantly found in the accompanying circumstances of a number of wounds of the chest by gunshot involve corresponding variations in their degrees of gravity and probable issues. The difference between an ordinary penetrating wound by gunshot, and a perforating one, is immense; in the one case the projectile is probably lodged; in the other it has passed out. Again, in either a penetrating or a perforating wound most important differences arise in the nature of the injury and the effects of the treatment, according as the lung is penetrated or not; and serious differences also depend upon the part of the lung penetrated or traversed by the ball. All these circumstances should be noted and taken into account in estimating the value of a

special plan of treatment in a given number of cases. If a ball passes through or near the root of the lung, it is scarcely possible to prevent a fatal result by any plan of treatment; if the track of the ball has been limited to the periphery of the lung, and the constitution of the patient and opportunities of treatment be favourable, we have a right to expect a favourable cure in a considerable proportion of cases under the mode of treatment which has hitherto been in ordinary use of late years, and which I have already described to you.

"The surgeon's efforts to secure healing by the first intention in the way named in gunshot wounds will, I think, be attended with success in only a very small proportion of exceptional cases. It is the rule of practice among army surgeons to close completely, by sutures, compresses, adhesive plasters, and bandages, all wounds of the chest—such as incised and stabbing wounds—in which there is thought to be a probability of union by the first intention being obtained. Not only the relief to the breathing by rendering more complete inflation of the lungs practicable—which is the immediate effect of this operation in an incised wound of the soft parietes of the chest and periphery of the lung—but the arrest of the hemorrhage (if this complication exist), together with the prevention of subsequent extended pleuritis and pleuro-pneumonia, are sought to be obtained by these means. And as in many cases the urgent symptoms have gradually abated under this treatment, and eventually respiration in the wounded lung been re-established, it has been rendered evident that the wounds had become closed by the adhesive process. You will find such cases fully recorded in the works of Guthrie, Larry, Hennen, and others. But in treating cases of incised wounds we cannot rely upon obtaining healing by adhesion even of the external orifice, although this may be uncomplicated with injury to bone or cartilage; and we should be prepared to meet these abortive attempts by other definite plans of treatment. The restlessness of the patient, the natural movements of the chest in respiration, inflammatory action, cough, weakened health, habits of life, and special conditions of the tissues, may thwart our attempts to effect this object. When to these sources of failure we add continued hemorrhage at the seat of injury in the parietes, and torn cartilage or divided ribs—such frequent concomitants of these injuries—the difficulty of obtaining healing by the first intention is still further increased.

"When we leave incised wounds and approach those of penetrating gunshot wounds—at least those inflicted by projectiles as large as ordinary musket-balls—the probability of obtaining healing by the first intention seems to be altogether absent. Here not only all the ordinary sources of prevention of this desired result which I have just mentioned exists in an exaggerated degree, but, in addition, a rib, when struck, is not simply divided as by a sword, but is contused and splintered, and the soft parts around the opening made by the ball, for a distance varying according to the size and shape of the projectile, and its amount of momentum, are bruised, and their vitality and reparative tendency proportionably diminished. To remove this sphacelated surface and surrounding bruised structures by incision, and then to force the edges of this enlarged opening together by sutures (for it is to be remembered, even in cases where ribs and their cartilages have escaped, the intercostal muscular tissues and pleura—not merely the integument—are contused and torn), appears to involve the necessity of such a strain as would prevent all probability of cohesion by first intention, even if such further impediments as costal movements, sudden impulses by coughing, and symptoms of inflammation arising, were not in existence. Experience has hitherto taught that in these injuries provision must be allowed for the escape of sloughs and suppurative discharges from the parietal wounds—not to mention other circumstances; and that to pent them up by closed compresses is to thwart nature's plans of attempting cure, and to aggravate the evils which have been already inflicted. Hence the rule has arisen in all cases of *incised wounds* of the chest, whether hemorrhage be present or not, to close the wound by suture and compress as early as possible, and to seek for union by adhesion; but in *gunshot wounds*, not to close by suture, and only to make accurate closure a matter of necessity where they are accompanied by active hemorrhage.

"Baron Larry, in his memoirs of the Egyptian campaign, has given an excellent explanation of the manner in which the urgent symptoms of an incised wound of the lung with hemorrhage, when the hemorrhage arises wholly from the pulmonary vessels, are frequently caused to cease, if the wound in the chest be accurately closed. While the wound is open, the inspired air, finding a ready way of exit by the opening in the lung, constantly opposes the cohesion of the margins of this opening, at the same time that its escape in this way prevents the distension of the air-cells of the surrounding lung-structure, which would lessen the arterial flow, and accelerate the return of the blood by the pulmonic veins. When the wound in the chest has been accurately closed, after allowing the blood already effused in the pleura to escape through the opening by favourable position, the air introduced into the lung by breathing, not finding the same way of issue, fills more completely the small bronchial tubes and air-cells, facilitates the return of blood to the heart, causes the divided lung surfaces to approach each other, favours the construction of the orifices of the wounded vessels, and assists by these means, as a consequence, the adhesive process. But in the case of a contused and ragged canal being opened through the lung by a projectile passing into or through it, all the circumstances are manifestly changed: if bleeding is going on from its surface, neither the passage of the air through the wound in the chest-wall nor its restraint can exert influence upon it, for the track of the ball will remain patulous under all circumstances, so far as the act of respiration is concerned.

"Let me briefly consider the three advantages which Dr. Howard advocates for the hermetically sealing treatment in gunshot wounds. Dr. Howard states the causes of fatality in gunshot wounds of the lungs to be hemorrhage, dyspnoea, and suppuration; and that these may be restrained and modified, if not prevented or removed, by the simple operation already described.

"*Hemorrhage*, Dr. Howard rightly places first amongst the causes of fatality. It is the symptom which of all others alarms the surgeon; for he cannot but feel how much the power of nature to arrest the flow of blood, and how much the result of his own endeavours to aid nature in her efforts, must depend upon accidental circumstances connected with the course of the projectile and the injuries it has inflicted, which it is entirely out of his power to control. The track of the bullet is out of sight; the injury it has done to the lung is out of reach. It may be judged that vessels of the largest size have not been divided as it traversed the viscus, or death would have been nearly instantaneous; a surmise may even be made of the part of lung wounded by the situation of the aperture of entrance, or, if two openings exist, by a supposed line connecting them. But such surmises are often proved to be erroneous by post-mortem inspection: even the source of the hemorrhage, whether it be wholly pulmonic, or wholly parietal, or the two combined, cannot be diagnosed with certainty in these complicated wounds. It is not to be wondered at, then, that under such circumstances of doubt and consciousness of helplessness, surgeons, though recognizing the differences between a gunshot and an incised wound of a lung, should nevertheless, almost instinctively, stop the gap through which the life-blood of the patient is seen to be flowing. Although the surfaces of the wound in the lung cannot be brought into contact and coaptation, there is still the hope that as the blood accumulates within the pleura it may exert such a pressure upon the wounded lung, and, perhaps, to plug up the mouths of the open vessels, as to stay the flow of blood and procure time for the saving processes of nature and the application of remedial measures on the part of the surgeon that may lead to the recovery of the patient. And the most experienced army surgeons have long recommended this course under circumstances of gunshot wounds *with profuse hemorrhage*. 'Hermetically sealing,' thus applied, is only a new term: the practice is not new. Immediate closure of the wound is, at the present day, the general practice of all surgeons in such cases. The difference in the treatment between the practice of *closure* and *hermetically sealing* is, that in the one no attempt is made to obtain healing of the wound by the first intention, which it is not expected can be obtained in openings made

by gunshot; and, secondly, that the continuation of the closure is made subject to other contingencies which are not unlikely to follow the injury. It frequently happens in such cases that the flow of blood, after the closure, is not arrested until the accumulation on the wounded side is so great that the pressure exerted upon the heart and sound lung is strong enough to threaten death from asphyxia. It is manifest under such circumstances that the wound cannot be kept hermetically sealed; it must be reopened, some of the effused blood allowed to escape, and there still remains the hope that the weakened state of the circulation, and the usual condition consequent on loss of much blood, with the aid of proper remedial measures, may favour the prevention of further hemorrhage. If we persist, under these circumstances, in maintaining the hermetically sealing of the chest—if Dr. Howard's injunction that the sutures are not to be removed until healing by the first intention is complete is attempted to be carried out—I fear the risk will be run of causing the death of the patient by suffocation.

"*Dyspnœa* is a symptom which may depend on several causes. It may be induced by the very circumstances I have just described, after closure of the wound—viz., continued hemorrhage and accumulation of blood in the cavity of the chest, and sealing will not then afford relief: if it depend upon the interference with natural respiration such as has been described to exist in incised wounds of the lung, hermetically sealing might afford relief if there were no complication and the sealing could be maintained long enough. This continued sealing, however, it is believed, the circumstances connected with the discharges, and other consequences of gunshot wounds, will not admit of. But supposing that for the relief of this symptom the chest has been hermetically sealed, an irregularly torn lung, or a lung with the open track of a ball through it, will almost certainly give rise to pneumothorax, and the continued escape of air into the cavity will cause such compression on all the contents of the chest as to aggravate the dyspnœa extremely, and cause imminent danger to life from suffocation. In such a case, again, the wound must be reopened, or another opening practised by the trocar, to afford relief.

"Lastly, Dr. Howard advances that *suppuration* is greatly diminished, if not prevented, by shutting out external air. This is doubtless the case with incised wounds, but can we expect it to be with penetrating gunshot wounds? An uncomplicated wound of this kind, without hemorrhage, without lodgment of foreign bodies, is unfortunately rare indeed, and such complications can scarcely fail but lead to pleuritic effusion and empyema. If the hemorrhage be slight, the blood may be absorbed: but if it be in its usual quantity, and not evacuated, it will irritate the serous sac, and produce the same effects as foreign bodies. Mr. Guthrie's experience in the Peninsular War led him to state, that in cases in which there was not a free communication between the wound in the parietes and the cavity of the chest pleuritic effusion was the principal danger to be feared. 'When the external wound,' Mr. Guthrie says, 'has been closed, or is so partially closed as not to allow the escape of the effused fluid, it is commonly the immediate cause of the death of the patient. Its secretion and early evacuation are, therefore, the most important points to be attended to in wounds of the chest.'

"I have thought it right to consider this subject at some length, because I fear, if penetrating gunshot wounds of the chest are treated indiscriminately by hermetically sealing the external wound or wounds, a fatal termination will be induced in some cases which might terminate otherwise under the more ordinary methods of treatment. But if my fears in this respect should be proved to be groundless, and practice shall bring to light an improved method of treating these serious injuries, military surgery will be greatly indebted to its author; for it is unhappily most true that hitherto, in all campaigns, the proportion of fatality in really penetrating and perforating wounds of the chest has always been excessively large. I believe the proportion of fatality would even appear greater than it does in some tables if the diagnosis were more accurately made in the various hospitals from the combined returns of which

<sup>1</sup> Commentaries on Surgery, 5th edit., p. 382.

such tables have been composed. Easy as one might at first suppose to be the diagnosis of a musket-ball wound of the chest, whether penetrating or non-penetrating, experience shows that it is not so. Partial circuits of balls beneath the integuments and the muscles of this region, beneath the scapula, perhaps complicated with great bruising, fracture, hemorrhage, and attended with dyspnoea, hæmoptysis, and faintness, deceive the unwary at once into the belief that the chest must have been opened and traversed by the ball when the pleura has escaped entire. The circumstances of field hospitals for some time after a battle too often add to the chances of inaccurate diagnosis of particular wounds, and errors, once made, are not likely to be changed in the tabular returns, although the nature of each case may be more truly arrived at in the secondary or general hospitals, through which the patients subsequently pass. I have repeatedly seen cases returned as *penetrating wounds*, in which I have been able to demonstrate satisfactorily that the cavity of the chest has not been exposed at all. You will find several such cases described by me in the last volume of the *Army Medical Reports*, under Wounds of the Chest. If, as has been stated, a field hospital should be established in America for the reception of gunshot wounds of the chest, and the cases be submitted to the treatment I have been commenting upon, it is especially to be hoped that the diagnosis in each case shall be in the first instance established and defined as accurately as possible, so that the value of the observations made on the effects of this treatment, and of the tabular deductions as to its final results, may not be impaired by any doubts as to the nature of the series of cases which have been subjected to it.

"No pains appear to be spared by the authorities in America to encourage professional investigations of this nature; and under the able direction of the energetic Surgeon-General, Dr. Hammond, and from the observations of the hundreds of medical officers who are labouring in the immense field of campaigning practice which is now afforded in that country, we have every right to expect that great advances will be made there in the science of Military Surgery."

*Ligature of the Left Subclavian inside the Scalenus Muscle, together with Common Carotid and Vertebral Arteries for Subclavian Aneurism. Hemorrhage from the distal end of the Subclavian. Death on 42d day.*—Professor PARKER presented to the New York Pathological Society, October 28, 1863, a specimen of subclavian aneurism of the right side, which he had removed from the body of a man with the following history: During the month of August, 1862, a swelling about the size of a walnut made its appearance, without assignable cause, above the centre of the patient's right clavicle. It did not increase for a period of seven months, when it began slowly to enlarge, so that at the end of a year, when Dr. Parker was first consulted, it had attained the size of a hen's egg.

The diagnosis of aneurism was at once made, and the patient was advised to remain for some time quietly at home, take no violent exercise, and live upon vegetable diet. When he was next seen, the tumour had increased somewhat in size, and by pressure upon the axillary plexus, had given rise to considerable pain in the arm of the affected side. He was advised to submit either to the operation of ligation of the subclavian artery with its uncertain results, or to amputation at the shoulder-joint. At the end of four or five weeks, the patient again presented himself; the tumour had then very much increased in size, and he was suffering extremely from pain in the right arm. He was then admitted (September 2, 1863) to the New York Hospital. His nights were sleepless, and there was a very singular change in his circulation. When last seen, the pulsations in each wrist were regular, and numbered 76; now the pulsations in the right wrist could hardly be appreciated, and on the left side there was nearly the same condition of things present. The pulsation of his carotid varied from 120 to 130. A consultation, which was called, resulted in a decision to tie the common carotid near the bifurcation, and secure a good plug, and also the subclavian inside the scalenus muscle, together with the vertebral artery. It was thought best to ligate the vertebral artery, in order to guard against the acci-



dent which occurred in Kearney Rodgers's case of ligature of the left subclavian in 1845. Dr. Rodgers applied a ligature just inside the vertebral artery, in the first division. His patient went on very well until the fourteenth or fifteenth day, when he died of secondary hemorrhage, the result of the recurrent circulation through the vertebral into the subclavian. On the proximal side of the ligature was a well-formed plug, but on the distal side there was of course no coagulum whatever.

The operation was entered upon, and the ligatures applied without difficulty. The pulsations in the tumour immediately ceased, as did also the intense pain in the arm. The case progressed exceedingly well until the tenth day, when there was a slight hemorrhage, which, however, was easily controlled. On the twelfth day the ligature from the vertebral artery came away. September 17th, ligature of carotid came away; this was followed by a slight hemorrhage, which, however, had nothing to do with the artery itself. The ligature from the subclavian did not come away until the 26th, twenty-four days after the operation. On the 29th there was a slight and easily controlled hemorrhage. Oct. 1st. Suppuration from the wound was very free; although nature had done a good deal towards closing the opening, the tissues gradually broke away under the influence of pressure, and of the persulphate of iron, which had been used to check the bleeding. Oct. 7. Hemorrhage to the extent of three ounces. and pretty free. In the evening hemorrhage again, about one ounce. He rallied, however, from all this until the forty-second day after the operation, when hemorrhage again occurred, and he died.

The autopsy was made four hours post-mortem, by Dr. Sands, assisted by the gentlemen of the house-staff. The following is his report:—

Right sterno-mastoid removed; clavicles on either side sawn across at the junction of the outer with the middle third; and the sternal portion removed, together with the sternum, the costal cartilage having been previously divided; pericardium opened, and an incision made into the aorta, through which a pipe was introduced, and water injected upwards. After a considerable quantity of water was thrown into the vessels, some of it was seen to issue from what was afterwards found to be the distal end of the right subclavian artery; more escaping, however, from the proximal end. The water also appeared through the left internal mammary, which had been cut in raising the sternum, but more through the right internal mammary, although this had likewise been divided. The wound was deep, extensive ulceration having taken place to the right of the trachea; at its bottom was a round opening, which, upon examination, proved to be the distal extremity of the subclavian artery. The common carotid artery, internal jugular vein, and pneumogastric, were matted together by inflammatory products, as were the tissues generally in the neighborhood of the wound. The carotid artery, beyond the point which had been tied, was occupied by a firm plug that extended nearly to its bifurcation. The proximal portion of the carotid, as well as that of the subclavian, had been destroyed by ulceration, so that the bifurcation of the innominate was no longer visible. The latter vessel presented an open mouth with jagged ulcerated edges, and was filled by a firm fibrinous plug, which occupied nearly its entire length, and projected slightly through its open extremity. The distal end of the subclavian had ulcerated away, carrying with it the proximal portion of the vertebral, the distal portion of the latter being found well plugged. Excepting the vertebral, all the branches of the subclavian were found, and were seen to have their normal relation with the main trunk. They were also pervious, as was shown by the fact that they all admitted a probe introduced through the open end of the subclavian, before described as lying at the bottom of the wound. It was evident, therefore, that the patient had died of hemorrhage from the distal end of the subclavian, the blood having found its way into the latter by the recurrent circulation. The aneurismal sac was larger than a hen's egg, and nearly filled with coagula. The axillary artery beyond the aneurism was healthy and unobstructed.

Several important morbid alterations were noticed on the left side of the neck. The left internal jugular vein was entirely obstructed by a plug of a brownish-yellow color, evidently an old coagulum. The left subclavian artery, just beyond

the origin of its branches, became suddenly smaller than natural, and on examination was discovered to be obliterated for five-eighths of an inch, beyond which it again assumed its normal size and appearance. The occlusion of the vessel seemed to have been the result of inflammation, the coats being thickened and indurated.

Dr. PARKER stated in conclusion that the operation for ligature of the subclavian had been performed in all eleven times by the following surgeons: I. Colles, in 1811, death occurring from hemorrhage on the fourth day; II. Mott, in 1833, death from hemorrhage on the eighteenth day; III. Hayden, in 1835, death from hemorrhage on the twelfth day; IV. O'Reilly, in 1836, death by hemorrhage on the twenty-third day; V. Partridge, in 1841, death from pericarditis and pleuritis on the fourth day; VI. and VII. Liston, in two cases—in the first, 1837, death occurred from hemorrhage on the thirteenth day, and in the second, 1839, death from the same cause on the thirty-sixth day; VIII. and IX. Auverte, in two cases; in both, death was the result of hemorrhage, in the first on the twenty-second, and in the second on the eleventh day. X. Rodgers' case, already referred to; XI. Lastly, Cuvellier, in 1860, death from hemorrhage on the tenth day—carotid and subclavian of right side ligatured.

Dr. BUCK remarked—A case invested with deeper interest than the one before us could scarcely be presented for our consideration. From the post-mortem dissection just described and the specimen exhibited, it appears that, notwithstanding the direct and reverse arterial currents had been intercepted by the ligatures applied to the subclavian, common carotid, and vertebral arteries, the success of the operation was defeated by the circulation still kept up in the aneurismal sac by means of the thyroid axis, internal mammary, and superior intercostal branches. The anastomoses of the terminal branches of the right inferior thyroid with those of the superior of the same side, and also of the internal mammary with the epigastric, must have afforded the channels for restoring and keeping up the circulation in the sac, and thus the formation of coagulum within its cavity has been prevented. Though the ligature upon the subclavian had completely divided the artery, leaving both ends open and exposed, the plug on the proximal side of the ligature had filled up the innominate, and closed it so impermeably as not to permit the passage of water injected at the root of the aorta. On the distal side of this ligature, however, the open mouth of the artery communicated immediately with the sac, and had furnished the repeated hemorrhages preceding death.

The question here suggests itself—Would the ligation of the thyroid axis, the internal mammary, and superior intercostal, in addition to the vertebral, have arrested all circulation in the aneurismal sac, and thus secured the conditions of success. It appears to me that it would have done so, and it is my firm conviction that this expedient ought to be tried, before we concede the impossibility of curing aneurism of the outer division of the subclavian artery by an operation.—*Am. Med. Times*, March 5, 1864.

*Ligature of the Subclavian Artery.*—Dr. ARMSBY, of Albany, has performed this operation on a healthy, robust man, 28 years of age, who had his right arm shattered by the accidental discharge of a cannon, July 7th, 1863.

Gangrene commenced on the second day, and on the third Dr. A. amputated near the shoulder. The stump healed kindly, and on the 12th day after the amputation he was able to go out, and soon after resumed his active business pursuits. His health remained good until September, when the stump began to swell and be painful, and on the 10th of November Dr. A. detected an aneurismal tumour; this tumour increased rapidly, elevating the bones of the shoulder, the pectoral muscles, and filling the axilla. The skin soon after gave way, and the patient lost by a sudden and rapid hemorrhage between two and three quarts of blood, causing faintness and almost loss of pulse. The opening was closed by compresses and adhesive plaster. The only chance of saving life seemed to be by ligation of the subclavian artery above the clavicle, which was performed by Dr. Armsby, on the 19th of November, 1863. The patient was placed on his back, with his face turned to the left. The first incision was about half an inch above and parallel with the superior border of the clavicle, extending from

the sterno-mastoid to the trapezius muscle; and exposing the superficial cervical fascia and the platysma myoides. The second incision was vertical, along the posterior border of the sterno-mastoid, intersecting the first at the margin of this muscle. In elevating the superficial fascia and the platysma myoides, it became necessary to apply a ligature to the external jugular vein, and divide it, as it could not be sufficiently retracted without danger of laceration. Three branches of the supra-scapular and deep cervical arteries bled profusely, and required ligatures. The clavicular attachment of the sterno-mastoid was unusually broad, and one half of it had to be divided to reach the scalenus-anticus, at its attachment to the rib. The deep cervical artery was held upward; the supra-scapular artery and the subclavian vein carefully depressed; and the great subclavian artery fully exposed as it emerged from between the scaleni muscles. In separating the artery from the great veins, which covered and inclosed it, a slight gurgling sound occurred, as if air was entering the circulation. This was a moment of intense anxiety, as such an accident might have been instantly fatal. A bit of sponge was pressed against the part, and as no constitutional disturbance followed, the operation proceeded. The artery was found in a healthy state, and the ligature was cast around it by the aneurismal needle of Mott. The situation of the artery was unusually deep, from the elevated position of the shoulder, by the tumour, but every person present had a distinct view of it before the ligature was tied.

The chief difficulties and dangers of the operation consisted in the following circumstances: The great size of the tumour, thrusting upward the bones of the shoulder; the distension of the surrounding parts; the great size of the veins, which covered and enveloped the artery; the large nerves of the axillary plexus, liable to be included in the ligature; and the danger of the introduction of air into the circulation. The pulsation in the tumour ceased as soon as the ligature was drawn, and the patient improved rapidly under the use of tonics. The sac gradually diminished, until the nineteenth day after the operation, when it became more painful, and the skin, or a portion of it, gave indications of sloughing. Dr. Armsby was again sent for, who opened the sac, and removed nearly a quart of coagulated blood and fibrinous matter.

The case has progressed favourably; the ligature came away on the twenty-ninth day, and the recovery has been rapid and complete, as far as the operation is concerned. There is a slight discharge of watery matter from the sac, which is gradually diminishing.—*Boston Med. and Surg. Journ.*, Feb. 4, 1864.

*Ligature of the Common Iliac Artery.*—Prof. BRAINARD reports (*Chicago Medical Journal*, March, 1864) the following case in which he performed this operation: April 9th, 1863, called to visit Col. Scott, 19th Illinois Vols., who was wounded at the battle of Stone River. A musket-ball had passed from before backwards through the thigh, entering below the pelvis and at the outside of the femoral artery, grazing the inside of the femur, and coming out of the buttock.

At the time of the accident, there was hemorrhage, which was controlled, as was supposed, by pressure on the femoral artery. The compression was continued about three weeks, during which time no hemorrhage occurred. The wound suppurated and some small scales of bone came out at each orifice of the wound.

He was removed to his home in Chicago, and did well, although the wound remained open behind, until about the 5th of April, three weeks after the accident, when a small tumour formed in front, which was opened. A day or two after, a hemorrhage took place from both openings. It was on account of this that my advice was asked. On the night of the 9th, at 11 o'clock, a copious hemorrhage renewed, which was controlled in a measure, but continued at intervals during the night.

10th. Saw him at 10 o'clock, and applied the compressor over the femoral artery. This seemed to arrest the bleeding, but in about two hours it returned.

The bleeding had been so great as to threaten death, and I determined to tie the external iliac artery, not doubting from the history of the case that the hemorrhage was from branches of the profunda femoris close to its origin.

With the aid of Prof. Freer and the Drs. Hurlburt, the ligature was placed upon the external iliac artery in the usual manner, as that described by Lisfranc; but on changing the position of the patient to remove the soiled bedclothing, the bleeding renewed as freely as ever. On a re-examination, the ligature was found to control the external iliac, and it was evident that the ischiatic artery was the one giving blood. The danger was urgent, and I enlarged the wound upward and outward, and placed a ligature on the common iliac artery. The anterior wound in the thigh was then enlarged, and a great quantity of coagula removed from it by the finger. No bleeding; patient under chloroform during the operation. Warm applications to the member; brandy and broth ordered.

11th, A. M. Limb cool, but not cold; has been troubled with nausea and attempts to vomit, which gave pain in the wound; pulse 100, condition good. Ordered an enema and a solution of soda bicarb. with gum Arabic for the vomiting. Broth continued.

12th. Has considerable pain and tenderness in the region of the left kidney. Pulse 120; slept well during the night, with two doses of acetum opii; wounds commencing to suppurate.

13th. Pulse 100; tenderness in left side diminished; takes broth with wine; slept well.

20th. Out of operation suppurates freely. Allowed beef broth and wine, with opiate at night.

24th. Ligature on the external iliac artery came away.

May 1. Ligature on common iliac came away. Patient doing well.

12th. Wound from operation healed.

From this time, he remained in good health until the early part of July, although the wound continued to suppurate and some small pieces of bone were discharged at the posterior orifice.

At this time he was attacked by a copious watery diarrhoea followed by typhoid fever, of which he died July 8th, three months after the operation.

*Divided Tendo-Achillis united by Silver Wire.*—Dr. G. L. SIMMONS, of Sacramento, relates (*Pacific Med. and Surg. Journ.*, Jan., 1864) a case in which the tendo-Achillis of a man was completely severed accidentally about an inch from its attachment. Dr. S. found the upper edge of the cut tendon retracted an inch and a quarter into its sheath. Dr. S. flexed the limb, drew down the retracted tendon by strong forceps, and united the cut ends with a large sized silver ligature; the leg was kept flexed for a few days with adhesive straps, after which the usual slipper and dog-collar were used. In a few weeks the patient was able to walk in a high-heeled shoe with but little pain. Scarcely any stiffness resulted from the injury, and at the date of the report he could walk freely with the slightest perceptible halt. The "propriety of using silver wire in uniting tendons," Dr. S. says, "can hardly be questioned. In the above case the result was all that could be desired; and, although position alone might possibly have accomplished the same end in the same time; yet it is probable that the perfect approximation of the parts by the ligature assisted in defining the bond of union until it became strong. In this case after the uniting mass was perfected, I removed the silver wire, as the play of the tendons caused the foreign body to slightly irritate the neighbouring tissues.

*Hospital Gangrene.*—Dr. FRANK H. HAMILTON, Jr., Ass. Surg. U. S. A., has given (*American Medical Times*, Oct. 31, 1863) a tabular statement of 33 cases of hospital gangrene which occurred in the McDougal General Hospital. It appears from this table that but two of the cases terminated fatally, and these some days after the gangrene had been arrested. In one of these the patient died from exhaustion, the result of extensive suppuration in the knee-joint, the wound having been in a perfectly healthy condition for several days. In the other the patient died from dysentery, his wound having put on a healthy action two weeks before his disease.

In one case where nitric acid was used, the disease was not arrested, and at the end of ten days it was found necessary to amputate the leg above the knee.

The stump healed by the first intention. An analysis of the table shows that the average duration of all cases, under all treatments, amounts to 12.15 days.

Number treated with nitric acid . . . . .	18
Average duration of disease . . . . .	16 days
Number treated with sol. bromine . . . . .	14
Average duration . . . . .	6.6428 days
Number treated with iodine . . . . .	1
Average duration . . . . .	7 days

These results are decidedly favourable to bromine.

*Traumatic Tetanus successfully treated with Chloroform and Subsequent Use of Belladonna.*—Dr. L. C. LANE reports (*San Francisco Medical Press*, Oct., 1863) the following case: Some weeks since, in the St. Mary's Hospital in this city, there was admitted a young man with fracture of the os femoris in its upper third; the fracture, which was comminuted in character, was the result of a fall from one of the city cars, while in motion.

The injury was treated by the application of Desault's long-extending and counter-extending splint. Shortly after the limb was dressed in this manner, tetanic symptoms presented themselves in the form of trismus, which ultimately became general, the whole body being thrown into violent muscular contractions. Soon after the supervention of these symptoms, the patient was put under the influence of chloroform by inhalation. He was maintained in a state of constant anæsthesia for near seven hours, consuming, in the meantime, several ounces of chloroform, administered by means of an inhaler, so constructed, that but a small amount of the article could escape without being breathed. After the use of chloroform for that length of time, the tetanic symptoms so far disappeared, that the inhalation was suspended, and the patient was ordered belladonna; opiates were also given him. On the following day, trismus again ensued, when resort was had again to the chloroform. The closure of the lower jaws was quickly relieved, whereupon the inhalation was discontinued.

The remedy to which I am inclined to refer the rescue of the man's life in this case, was chloroform. The inhalation, as will be perceived, was carried to a much greater extent than usual, or than prudence would dictate in any other than a hopeless case. After the discontinuance of the anæsthetic, the patient presented symptoms of aberration of mind, which were present for several days afterwards, though they gradually became less, and in a week afterwards, they disappeared. The patient is yet under my charge, in every respect doing well, though time enough has not yet elapsed to have effected entire union of his fractured femur.

*Circumscribed Tumour of the Umbilicus, closely simulating Umbilical Hernia, apparently undescribed by authorities upon the subject, and perhaps new to Abdominal Diagnosis.*—Dr. H. R. STORER records (*Boston Med. and Surg. Journ.*, Feb. 25, 1864) the following interesting case: "Bridget McN., aged 40, was sent to the Woman's Hospital in the middle of November last by Dr. B. S. Shaw. She had been a patient at the Mass. Gen. Hospital, and her disease had there been very correctly suspected to be of malignant character. I will not enter into all the details of the case, although these in several respects are extremely interesting, inasmuch as they do not bear upon the special point for which I report the case. From the records of the Mass. Gen. Hospital, a full copy of which has been kindly sent to me by Dr. Shaw, it appears that the patient entered that institution on Aug. 14th, with ascites. She was tapped on the 30th of that month, eleven quarts of reddish, rather turbid serum being drawn off. No hepatic tumour was at that time to be discovered.

Shortly after her entrance at Pleasant St., I had occasion to again perform paracentesis, and it was repeated at intervals of a fortnight, some five or six times, until her death, which occurred on the 15th of the present month—upon each occasion two water-pails of bloody serum being removed, and upon each a tumour becoming more and more distinct a little to the right of the epigastrium, until it finally attained a size somewhat larger than a goose's egg. At the autopsy this proved to be the liver, enlarged and with extensive depositions of encephaloid matter, pronounced by Dr. Ellis of cancerous character. The

omentum, peritoneal surface and tract of the intestines were studded with carcinomatous deposits, and the uterus and ovaries, though never having given signs of functional or other disturbance, were degenerated into a common mass of disease, their relative limits being almost undistinguishable.

At the umbilicus there had always been noticed, since my first observation of the case, a circumscribed tumour of about the height and size of the last phalanx of the thumb, so entirely suggestive of an ordinary umbilical hernia that the possibility of its being otherwise was never suggested or entertained. The tumour remained of the same character at all times—both before and after tapping when the abdomen was distended and when it was empty—and was therefore supposed to be occasioned by old adhesions of some portion of the bowel, with perhaps partial strangulation, dating possibly from childhood; and therefore the absence of acute symptoms, hardly to be expected under such circumstances, was not considered unusual.

At the *post-mortem* examination, however, it proved that there was no loop of intestines in the neighbourhood of the umbilicus—that there was not and never had been any hernia at all. The tumour was well defined, localized, and entirely circumscribed. Upon incision by Dr. Ellis, it proved to be merely a deposition of softened carcinomatous matter in the substance of the umbilical tissue.

One case alone, at all approximating to this in character, had come to the knowledge of Ballard, that close student of the diseases of the abdomen. In the instance referred to, "the parietal peritoneum being infiltrated with colloid, the umbilicus presented a stretched and flattened appearance," an appearance entirely different from that now reported, and giving rise to no such mistaken opinion. Its occurrence as an element towards clearing up one at least of the very many possible obscurities of abdominal diagnosis, has seemed to me of sufficient importance to deserve being permanently recorded.

*Needles in the Body.*—To the many very curious cases of this kind recorded, Dr. F. D. LENTE, of Cold Spring, adds (*American Med. Times*, Dec. 26th, 1863) the following: He states that he was called to a girl, about seven years of age, who had told her mother five months previously that she had swallowed a pin. As no unpleasant symptoms supervened, the occurrence was soon forgotten, until a few days before Dr. Lente was called in, when she complained that on stooping down something pricked her in the belly; and upon feeling with her fingers she discovered what she supposed to be the forgotten pin; upon examining the spot, which was a few inches below the umbilicus, after some manipulation I managed to get the two ends of the substance between two fingers, and, on pressing one end outwards forcibly, the point of what proved to be a needle an inch and a half in length projected through the skin, and was drawn out by a pair of forceps. It was blackened and very brittle. No unpleasant consequences have resulted. Dr. Lente also states that he knew an old gentleman, who was engaged in a large mercantile business, who suffered for twenty or thirty years with "neuralgic pains," so they were called, in different parts of the body, for which but little relief was obtained, and from which his constitution suffered very much. One day, while writing in a private room of his establishment, and rubbing his knee, which was, at the time, the seat of one of his neuralgic attacks, suddenly, to his great surprise, the point of a needle popped out of the skin. Before endeavouring to pull it out, he called in some of his clerks to witness the phenomenon. He never afterwards suffered from any of his former attacks.

*American Medical Association.*—The 15th Annual Meeting of the "American Medical Association," will be held in the city of New York; commencing, Tuesday June 7th, 1864, at 10 o'clock A.M.

Proprietors of Medical Journals throughout the United States and the Territories are respectfully requested to insert the above notice in their issue.

GUIDO FURMAN, M.D., *Secretary*.

NEW YORK, March, 1864.

# INDEX.

## A.

- Abdomen, treatment of gunshot and penetrating wounds of, 558  
 Abscess, exophthalmos from, 538  
 —, perinephritic, 259  
 Air in veins as a cause of death, 38  
 Albuminuria, perchloride of iron and ergot in, 522  
 Amaurosis, causes of, 265  
 —, produced by tobacco, 266  
 Amenorrhœa, surgical treatment of, 81  
 American Medical Association, 568  
 Amputation at hip-joint, 105  
 —, new mode of arresting venous hemorrhage after, 529  
 —, statistics of, 528  
 Amputations, major, for injuries, 361  
 Amygdalotomy, 255  
 Amyle, physiological properties of nitrite of, 510  
 Aneurism, subelavian, 562  
 —, traumatic, 108  
 Aniline as a poison, 274  
 Antisell on bile, 91  
 Antiseptic, quinia as a local, 507  
 —, carbolic acid as, 508  
 Aphonia, hysterical, 412  
 Apoplexy following railroad injury, 427  
 Arit, exophthalmos in infant, 538  
 Armsby, ligature of subelavian artery, 564  
 Arteries, gunshot wounds of, 108  
 Ashhurst, apoplexy following railroad injury, 427  
 —, bed sores, 431  
 —, mammary tumour, 430  
 —, stricture of rectum, &c., 431  
 —, surgical cases, 142  
 Ashton on rectum and anus, notice of, 225  
 Astigmatism, 281  
 Atlas, partial luxation forward of, 535

## B.

- Bader, corneal incisions with scissors for extraction of cataract, 539  
 Beale, colourless corpuscles of the blood, 505  
 Bean, horizontal position in bilious vomiting, 239  
 Beck, statistics of effects of *Secale cornutum*, 541  
 Bed-sores, 431  
 Bevan, fracture of odontoid process of axis, etc., 535  
 Beyran, polypus in male urethra, 533

## Bibliographical notices—

- American Hospitals for the Insane, 210, 473  
 — Ashton on Diseases of Rectum and Anus, 225  
 — Bibliographical Record, 504  
 — Bowman's Medical Chemistry, 226  
 — — Practical Chemistry, 502  
 — British Pharmacopœia, 503  
 — Bryant, Surgical Diseases of Children, 493  
 — Carson's Lectures of Materia Medica, 223  
 — Chew's Lectures on Medical Education, 498  
 — Ellis's Medical Formulary, 223  
 — Goldsmith's Report on Hospital Gangrene, 221  
 — Guy's Hospital Reports, 489  
 — Medico-chirurgical Transactions, 483  
 — O'Reilly, Connection between Mother and Fœtus in Utero, 500  
 — Smith on Human Entozoa, 503  
 — Storer's Dictionary of Solubilities, 220  
 — Thompson, Lithotomy and Lithotripsy, 224  
 — Transactions of Illinois State Medical Society, 467  
 — — of State Medical Society of Ohio, 471  
 — — of State Societies, 195, 467  
 — Treatment of Diphtheria, 218  
 Bibron's mixture, 132  
 Bichromate of potassa as a poison, 276  
 Bile, Antisell on, 91  
 —, relation of circulation of liver to secretion of, 228  
 Biliary secretion, persistence of, after ligation of vena porta, 229  
 Bilious vomiting, influence of horizontal position on, 239  
 Bismuth and glycerine, local employment of, 231  
 Bladder, subpubic puncture of, 532  
 Blood, colourless corpuscles of, 505  
 Bouchut, pulmonary congestion in children, 245  
 Bouilland, anomaly of cavities of heart, 229  
 Bonisson, ophthalmia from sulphuring vines, 268  
 Bowman's Medical Chemistry, notice of, 226

- Bowman's practical chemistry, notice of, 502  
 Brachial artery, ligature of, 145  
 Brainard, ligature of common iliac, 565  
 Braun, treatment of vomiting in pregnancy, 543  
 British Pharmacopœia, notice of, 503  
 Bronchial affections, tincture of larch in, 521  
 Bryant, Surgical Diseases of Children, notice of, 493  
 Bryce, new cause of unavoidable hemorrhage, 273  
 Bryson, epidemic pleuro-pneumonia, 518  
 Burns, dressing for, 130
- C.
- Callender, statistics of amputation, 528  
 Calvert, therapeutic properties of carbolic acid, 229  
 Carbolic acid as an antiseptic and as a local application, 508  
 ———, therapeutic properties of, 229  
 Carbuncle, treatment of, 247  
 Carmichael, rectification of face presentation under chloroform, 272  
 Cataract, new methods of extracting, 261, 530  
 Cerebro-spinal meningitis, 413  
 Cervix uteri, hypertrophic elongation of, 17  
 Chanore, structure of, indurated, 534  
 Chapman, new mode of controlling circulation of blood in different parts of body, 235  
 Chassagne, persistence of secretion of bile after ligature of vena porta, 229  
 Chassagny, death following etherization, 550  
 Chatin, albuminuria, 522  
 Chest, gunshot and penetrating wounds of, 558  
 Chevallier and Bicourt on bichromate of potassa as a poison, 276  
 Chevance, pneumatocele of skull, 258  
 Chew's lectures on medical education, notice of, 498  
 Chloroform, anomalous results from inhaling, 231  
 Choreic convulsion, 138  
 ———, Chapman on, notice of, 218  
 Cinchonia in intermittent fever, 396  
 Clarke, review of his researches on spinal cord and brain, 463  
 Coagula in pulmonary artery, sudden death from, 526  
 Common carotid, ligature of, 556  
 ——— iliac, ligature of, 565  
 Conjunctivitis, tannin in, 267  
 Contractility of healthy and paralyzed muscles by electricity, 227  
 Coote, cancerous infiltration of penis, 260  
 ———, ovary in hernial sac, 532  
 Corneal, incisions with scissors for extraction of cataract, 539  
 Cotton, effect of Surat, on the health of operatives, 547  
 Crimean campaign, review of medical and surgical history of, 433  
 Critchett's operation for staphyloma, 263  
 Cysticerci in human body, 517
- D.
- Davanne, poisoning by cyanide of potassium, 278  
 Delirium tremens, treatment of, 237
- Delore, cysticerci in human body, 517  
 Deodorizer and disinfectant, iodine as, 546  
 Deroubaix, amygdalotomy, 255  
 Diabetes, diet in, 525  
 Diarrhoea and dysentery, treatment of, 238  
 Dictionary of Solubilities, notice of, 220  
 Diet in diabetes, 525  
 Diphtheria, 240  
 ———, Chapman on, 218  
 ———, heart clot as a cause of death in, 305  
 ———, Meigs on, 148  
 ———, tracheotomy in, 253  
 Diphtheritic affection of lining membrane of uterus, 274  
 Diseased cattle, dangers of slaughtering, 548  
 Diuretic wine, 231  
 Durham, mucous cyst on epiglottis, 254
- E.
- Ear, foreign bodies in, 537  
 Ellis's Medical Formulary, notice of, 223  
 Emerald green, effects of, upon paper stain-ers, 278  
 Epidemic diseases, practicability of arresting by antisymptotic agents, 545  
 Epiglottis, mucous cyst on, 254  
 Erectile tumours of glans penis, 530  
 Ergot and perchloride of iron in albuminuria, 522  
 Etherization, death following, 550  
 Exhaustion of spinal cord, influence of, in inducing paraplegia, 241  
 Exophthalmos from abscess, 538
- F.
- Face presentation, rectification of, under chloroform, 272  
 Favus, carbolic acid as a local application in, 508  
 Fayrer, tetanus from wound of hand, section of median nerve, 256  
 Femoral artery, ligature of, 551  
 Fibro-plastic tumour of dura mater, 425  
 Fleming, male fern in tapeworm, 523  
 Forearm, injury of, 146  
 Foreign bodies in ear, 537  
 Fungus cerebri, 424
- G.
- Gamgee, dangers of slaughtering diseased cattle, 548  
 Gieseler, quinia as a local antiseptic, 507  
 Girdès, sutures in operations for hare-lip, 258  
 Glans penis, erectile tumours of, 530  
 Goldsmith's Report on Hospital Gangrene, notice of, 221  
 Greene, air in veins as a cause of death, 38  
 Greenhow, tincture of larch in bronchial affections, 521  
 Gross, amputation at hip-joint, 105  
 Guersant, operative surgery in children, 251  
 Gunshot injuries, surgical notes of, 324, 333  
 ——— wound of penis and scrotum, 261
- H.
- Habershon, implication of gastric nerve in tumours, 526  
 Hæmaturia due to the presence of parasites, 515



Hæmostatic, new, 231  
 Hamilton, hospital gangrene, 567  
 Hanbury, treatment of delirium tremens, 237  
 Hand, wound of, 142, 143  
 Harley, hæmaturia, 515  
 Heart, anomaly of cavities of, 229  
 ————, clot as a cause of death in diphtheria, 305  
 ————, osseous degeneration of valves of, 432  
 Hemorrhage, traumatic, 108  
 ————, new cause of unavoidable, 273  
 Hernia cerebialis, 423  
 ————, operations for, on aged patients, 257  
 Hicks, combined external and internal version, 268  
 Hip-joint, amputation at, 105  
 Hospital gangrene, 330, 378, 566  
 Howard, treatment of gunshot and penetrating wounds of chest and abdomen, 558  
 Hughes, Bibron's mixture, 133  
 Hutchinson, fungus cerebri, 424  
 ————, hernia cerebialis, 423  
 ————, hysterical loss of voice and hearing, 412  
 ————, osseous degeneration of valves of heart, 432  
 Hydrocele, radical cure of, 258  
 Hyoid bone, syphilitic caries of, 428  
 Hypertrophic elongation of cervix uteri, 17  
 Hypertrophy of os and cervix uteri, 284

I.

Illinois State Medical Society, notice of transactions of, 467  
 Indiana State Medical Society, notice of transactions of, 208  
 Influenza, 65  
 Injury, railroad, 145  
 Intermittent fever, urine in, 245  
 ————, cinchona in, 396  
 Iodine as a deodorizer and disinfectant, 546

J.

Jackson, therapeutical applications of permanganate of potash and ozone, 98  
 Janssens, new hæmostatic, 231  
 Jobert de Lamballe, perinephritic abscess, 259  
 Jenks, spotted fever, 282

K.

Keller, trichina spiralis disease, 352  
 Kentucky, Eastern, Asylum for Insane, notice of report of, 215  
 King, syphilitic caries of hyoid bone, 428  
 King's County, N. Y., Asylum, notice of report of, 216  
 Knee-joints, wounds of, 339

L.

Lamy, poisonous properties of thallium, 280  
 Lane, traumatic tetanus, 567  
 Larch, tincture of, in chronic bronchitis, 521  
 Laurence, reflecting ophthalmoscope, 269  
 Leach, effect of Surat cotton on the health of operatives, 547  
 Leared, pain in stomach after ingestion of food, 519  
 Lente, needles in body, 568  
 Levick, influenza, 65

Levick, miasmatic typhoid fevers, 404  
 Lidell, gunshot wounds of arteries, 108  
 ————, major amputations for injuries, 361  
 Liersch, toxicological experiments with turpentine, 279  
 Ligature of common carotid, 556  
 ———— of common iliac artery, 565  
 ———— of femoral artery, 551  
 ———— of left subclavian, common carotid and vertebral arteries, 562  
 ———— of subclavian artery, 564  
 Limbs, inequality of length of, 260  
 Liquor bismuthi, 511  
 Lithotomy in young persons, 555  
 Lithotripsy without injections, 531  
 Liver, relation of circulation in, to formation of bile, 228  
 Lobb, contractility of healthy and paralyzed muscles, 227  
 Longmore, treatment of gunshot and penetrating wounds of chest and abdomen, 558

M.

Maine Insane Hospital Report, notice of, 479, 482  
 Maisonneuve, dressing of wounds, 258  
 ————, radical cure of hydrocele, 258  
 Male fern in tapeworm, 523  
 Mammary tumour, 430  
 Manganese, pain in stomach after ingestion of food, cured by, 519  
 Mapother, erectile tumours of glans penis, 530  
 ————, osteo-aneurism, 531  
 Marcé, senile dementia, 244  
 Martin, hypertrophy of os and cervix uteri, 284  
 Massachusetts State Lunatic Hospital at Worcester, notice of report of, 479

at

Northampton, notice of report of, 481  
 Median nerve, section of, for tetanus, 256  
 Medico-Chirurgical Transactions, notice of, 483

Meigs, diphtheria, 148

———, heart clot as a cause of death in diphtheria, 305

Mental Hygiene, review of, 151

Merrill, cerebro-spinal meningitis, 413

Miasmatic typhoid fever, 404

Michigan Asylum for Insane, notice of report of, 215

Montgomery, anomalous results from inhaling chloroform, 231

Mooren's method of extracting cataract, 262  
 Moses, surgical notes of gunshot injuries, 324

Mount Hope Institution for the Insane, notice of report of, 213

Muscles, contractility of healthy and paralyzed, 227

N.

Needles in body, 568

Nerves, injuries of, 316

———, passage of, across middle line of body, 343

Neubauer, Analysis of Urine, review of, 178

Neuralgic affections following injuries of nerves, 316

New York State Medical Society, notice of transactions of, 197

- New York State Lunatic Asylum, notice of report of, 473  
 ——— City Asylum, notice of report of, 216  
 Nicholson, urine in intermittent fever, 245  
 Nitrite of amyle, 510  
 Nitro-benzole as a poison, 274  
 Norris, gunshot wound of penis and scrotum, 281
- O.
- Odontoid process of axis, fracture of the, 535  
 Ohio State Medical Society, notice of transactions of, 195, 471  
 ——— (Central) Lunatic Asylum, notice of report, 475  
 ——— (Southern) Lunatic Asylum, notice of report, 476  
 Operative surgery in children, 251  
 Ophthalmia from sulphuring vines, 268  
 Ophthalmoscope, reflecting, 269  
 Opium in poisoning by *Datura stramonium*, 552  
 Ordonez, structure of indurated chancre of prepuce, 534  
 O'Reilly, nervous and vascular connection between mother and fetus, 500  
 Osteo-aneurism, 531  
 Ovariectomy, 419  
 Ovary in hernial sac, 532  
 Ozone, therapeutical applications of, 98
- P.
- Packard, dressing for burns, 130  
 Paracentesis for pleurisy, 135  
 Paraplegia, influence of exhaustion of spinal cord in producing, 241  
 Parasites, hæmaturia from, 515  
 Parker, ligature of left subclavian, common carotid and vertebral arteries, 552  
 Patella, comminuted fracture of, 430  
 Penis, cancerous infiltration of, 260  
 Pennsylvania Hospital for the Insane, notice of report of, 210  
 ——— State Lunatic Hospital, notice of report of, 211  
 ——— Medical Society, notice of transactions of, 204  
 Perchloride of iron and ergot in albuminuria, 522  
 Perinephritic abscess, 259  
 Permanganate of potash, therapeutical applications of, 98  
 Phthisis, 429  
 ———, red line on the gums in, 246  
 Picard, red line on the gums in phthisis, 246  
 Pleuro-pneumonia, epidemic, 518  
 Pneumatocoele of skull, 258  
 Pneumogastric nerve, implication of, in tumours, 526  
 Poisoning by cyanide of potassium, 278  
 Poisons, nitrobenzole, 274  
 ———, aniline, 274  
 ———, bichromate of potassa, 276  
 ———, thallium, 280  
 ———, by *Datura stramonium*, 552  
 Polypus in male urethra, 533  
 Pope, ligature of common carotid, 556  
 Porter, chronic convulsion, 138  
 ——— pleurisy from gunshot wound, 135
- Porter, new mode of arresting venous hæmorrhage after amputation, 529  
 Pott's abscess of brain, 414  
 Pregnancy, vomiting of, 543  
 Price, direct communication between bladder and rectum, 247  
 Pritchard, treatment of carbuncle, 247  
 Progressive locomotor ataxia, 164  
 Pulmonary congestion in children, 245
- Q.
- Quinia as a local antiseptic, 507
- R.
- Raphael, case of Pott's abscess of brain, 414  
 Ray's mental hygiene, review of, 151  
 Rectum and bladder, direct communication between, 247  
 ———, stricture of, 431  
 Reeve, ovariectomy, 419  
 Renard, sulphur in tendinous rheumatism, 522  
 Reviews—  
 ——— Analysis of the Urine, 178  
 ——— Histology of the Spinal Cord, 463  
 ——— Medical and Surgical History of the Crimean Campaign, 433  
 ——— Mental Hygiene, 151  
 ——— Progressive Locomotor Ataxia, 164  
 Rheumatism, tendinous, sulphur in, 522  
 Richardson, iodine as a deodorizer and disinfectant, 546  
 ———, physiological properties of nitrite of amyle, 510  
 Ridgewood, disinfecting powder, 287  
 Robinson, arrest of epidemic diseases by anti-symptotic agents, 545  
 Russel, influence of exhaustion of spinal cord in inducing paraplegia, 241
- S.
- Sarracenia purpurea, 510  
 Scalp, wound of, 143  
 Schiff, relation of circulation in liver to secretion of bile, 228  
 Scelus cornutum, statistics of effects of, 541  
 Senile dementia, 244  
 Sheraton, tannin in conjunctivitis, 267  
 Silver wire, divided tendo Achillis united by, 566  
 Simmons, divided tendo Achillis united by silver wire, 566  
 Simpeon, diphtheritic affection of lining membrane of uterus, 274  
 Skey, treatment of varicose veins, 530  
 Skoda, treatment of diarrhoea and dysentery, 238  
 Smith, diet in diabetes, 525  
 ———, on human entozoa, 503  
 ———, operations for hernia on aged patients, 257  
 ———, tracheotomy in children, 253  
 Socquet, albuminuria, 522  
 Speir, source of yellow colour of skin in yellow fever, 286  
 Spinal cord, influence of exhaustion of, in inducing paraplegia, 241  
 Spotted fever, 282  
 Staphyloma, Critchett's operation for, 283  
 Statistics of amputation, 528

Stomach, pain in, after ingestion of food, 519  
Storer, surgical treatment of amenorrhœa, 81  
——, tumour of umbilicus, 567

Storer's Dictionary of Solubilities, notice of, 220

Strangulated hernia in aged patients, operations for, 257

Struthers, variety of the muscles of the axis, atlas, and occipital bone, 506

Styptic, turpentine as, 510

Subclavian artery, ligature of, 564

Sudden death from obstruction of the pulmonary artery by coagula, 526

Sulphate of copper in pencils, 234

Sulphur in tendinous rheumatism, 522

Supra-pubic fistula of bladder, 428

Surat cotton, effects of, on the health of operatives, 547

Sutures in operations for hair-lip, 258

Syphilitic caries of hyoid bone, 428

T.

Tannin in conjunctivitis, 267

Tapeworm, male fern in, 523

Tendo Achillis, divided, united by silver wire, 566

Tetanus from wound of hand, 256

——, traumatic, 567

Thallium, poisonous properties of, 280

Thompson, lithotomy and lithotrity, notice of, 224

Thomson, hospital gangrene, 378

——, lithotrity without injections, 531

Tichborne, liquor bismuthi, 511

Tinctura boleti laricis Canadensis, 510

Tracheotomy in diphtheria, 253

Trichina disease, 352, 358, 512

Trichiniasis in Germany, 512

Trousseau, diuretic wine, 231

Turner, cinchonia in intermittent fever, 396  
——, poisoning by *Datura stramonium*, 552

Turpentine as a styptic, 510

——, toxicological experiments with, 279

Tyson, comminuted fracture of patella, 430

U.

Umbilicus, tumour of, 567

Urethra, polypus in, 533

Urinary bladder, supra-pubic fistula of, 428

Urine in intermittent fever, 245

V.

Varicose veins, treatment of, 530

Venous hemorrhage after amputation, new mode of arresting, 529

Veratrum viride, 509

Vermont Asylum, notice of report of, 478

Version, combined external and internal, 269

Vogel, semeiology of human urine, review of, 194

Voillemier, subpubic puncture of bladder, 531

Voltolini, foreign bodies in ear, 537

Vomiting of pregnancy, treatment of, 543

W.

Waldau's method of extracting cataract, 261

Wales, ligature of femoral artery, 551

——, spotted fever, 22

Walker on diphtheria, 240

Warren, hypertrophic elongation of cervix uteri, 17

——, neuralgic affections following injuries of nerves, 316

—— on lithotomy in young persons, 556

Watson, carbolic acid as an antiseptic and local application in favus, 508

——, *Sarracenia purpurea*, 510

——, *tinctura boleti laricis Canadensis*, 510

——, *Veratrum viride*, 509

Western Pennsylvania Hospital for the Insane, notice of report of, 212

Wilks, turpentine as a styptic, 510

Wood, fibro-plastic tumour of dura mater, 425

——, phthisis, 429

——, supra-pubic fistula of bladder, 428

Wordsworth, amaurosis produced by tobacco, 266

Wounds, dressing of, 258

Wyman, passage of nerves across the middle line of the body, 343

Y.

Yellow colour of skin in yellow fever, source of, 286

## GRADUATES OF JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA,

MARCH, 1863.

At a Public Commencement, held on the 10th of March, 1864, the degree of Doctor of MEDICINE was conferred on the following gentlemen by the Hon. EDWARD KING, LL. D., President of the Institution; after which an Exhortation to the Graduates was delivered by Prof. DUNGLISON.

NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Andrews, T. Hollingsworth	Pennsylvania.	Erysipelas.
Ashton, Asa S.	Ohio.	Science and Practice of Medicine.
Barr, David Miller	Maryland.	Hemorrhagic Labours.
Bartles, William H.	New Jersey.	Habit and Diseases.
Bell, James (M.D.)	Ohio.	Diphtheritis.
Bell, Joseph G.	Maryland.	Pneumonia.
Bese, Frederick	Pennsylvania.	Cynanche Trachealis.
Blanton, Carter (M.D.)	Kentucky.	Diseases of the Teeth and their Sequela.
Boyer, Samuel S.	Pennsylvania.	Gonorrhœa.
Brown, William A.	Ohio.	Nervous Fluid and the Antidotes of Narcosis.
Brownfield, B. F.	Pennsylvania.	Primary Syphilis.
Buckner, Garrett Davis	Kentucky.	Gunshot Wounds.
Burden, Jesse R.	Pennsylvania.	Scrofula.
Butcher, Samuel	New Jersey.	Intermittent Fever.
Caldwell, Daniel G.	Pennsylvania.	Enteric Fever.
Caldwell, Wm. Spencer	Illinois.	Medical Sectarianism.
Campbell, William H.	Missouri.	Enteric Fever.
Cary, Ezra H.	Pennsylvania.	Enteric Fever.
Case, James B.	Pennsylvania.	Conception and Gestation.
Christie, William	New Brunswick.	Coxalgia.
Christopher, Howard L.	Kentucky.	Typhoid Fever.
Clinkinbeard, Allen K.	Kentucky.	Dysentery.
Clements, Christopher C.	Kentucky.	Ipecacuanha.
Davis, Harden A.	Indiana.	Iron and its Compounds.
Dean, John W. (M.D.)	Indiana.	Ulceration of the Os Uteri.
De Ford, Harry S.	Pennsylvania.	The Uterus.
Dodge, Wm. Campbell, Jr.	Vermont.	Diphtheria.
Dougherty, J. Drake	Kentucky.	Inflammation.
Dunder, Adam B. (M.D.)	Pennsylvania.	Dyspepsia.
Edwards, Thomas J. (M.D.)	California.	Intellection.
Engelman, David	Pennsylvania.	Dysentery.
Ferguson, Lewis L. (M.D.)	Kentucky.	Spermatorrhœa.
Forsythe, Matthew Leander	Kentucky.	Pericarditis, Symptoms and Physical Signs.
Freas, William B.	Pennsylvania.	Scarlatina.
Fuller, Amos B.	Ohio.	Dysentery.
Geddes, Clarence	Pennsylvania.	Discovery of the Circulation.
Gemmill, Robert B.	Pennsylvania.	Variola.
Gibson, Lycurgus	Pennsylvania.	Inflammation.
Gibbs, Henry L.	Pennsylvania.	Diagnosis.
Gillespie, Robert	Pennsylvania.	Typhoid Fever.
Gray, John W.	Indiana.	Erysipelas of the Fauces.
Grimes, Louis A.	Ohio.	Stricture of the Urethra.
Gumbes, Charles W.	Pennsylvania.	Trifolium in Fœno.
Hill, Walter B.	Kentucky.	Opium.
Hittle, Benjamin F.	Pennsylvania.	Diphtheria.
Hogendobler, Israel	Pennsylvania.	Signs of Pregnancy.
Howes, Daniel L.	Canada West.	Measles.
Jack, William	Pennsylvania.	Respiration.
Jackson, John	Pennsylvania.	Acute Rheumatism.
Jones, James	Maryland.	Pneumonia.
Jordy, George H.	Pennsylvania.	Hygea.
Keeley, Jerome	Pennsylvania.	Typhoid Fever.
Krecker, Frederick	Pennsylvania.	Diphtheria.
Lapsley, John B.	Kentucky.	Physical Signs and Diagnosis of Pneumonitis.

NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Leaman, Brainerd	Pennsylvania.	Enteric Fever.
Leaman, Henry	Pennsylvania.	Conservatism in Medicine.
Leighton, Walter H.	Massachusetts.	Intermittent Fever.
Lineaweaver, Simeon T.	Pennsylvania.	Bromine in Hospital Gangrene and Phlegmonous Erysipelas.
Lippincott, Franklin B.	New Jersey.	Hospital Gangrene.
Lippincott, Henry	Nova Scotia.	Rheumatism.
Lowndes, Charles T.	W. Virginia.	Pneumonia.
Martin, Edwin	Pennsylvania.	Gunshot Wounds.
Massey, Isaac	Pennsylvania.	Icterus.
Maupin, William T.	Missouri.	Alcohol.
Maxwell, J. Gordon, Jr.	Pennsylvania.	Clinical Surgery.
McArthur, John A.	Pennsylvania.	Compound Fractures of the Thigh.
McClure, William Wallace	Pennsylvania.	Cinchona.
McCormick, J. F.	Pennsylvania.	Tinctura Ferri Chloridi.
McCoy, Henry W.	Illinois.	Emetics.
McIntyre, John H.	Indiana.	Scurvy.
McKenzie, George I.	Nova Scotia.	Acute Pneumonia.
McLaughlin, James A.	Massachusetts.	Typhoid Fever.
Miller, David P.	Pennsylvania.	Intermittent Fever.
Miller, Lloyd T. (M.D.)	Missouri.	Bantonin.
Miller, Robert	Kentucky.	Dislocation of the Femur.
Millikan, Robert H.	Ohio.	Syphilides.
Mullen, Henry	Pennsylvania.	Scarlatina.
Nelson, George W. (M.D.)	Missouri.	Treatment of Diphtheria.
Newcomer, Joseph W.	Pennsylvania.	Aneurism.
Parker, William S.	Ohio.	Phthisis Pulmonalis.
Pennsyl, Philip H.	Pennsylvania.	Phthisis Pulmonalis.
Pitcher, Stewart C.	Indiana.	Hospital Gangrene.
Phillips, Edwin	Illinois.	Intermittent Fever.
Phillips, Thomas H.	Pennsylvania.	Acute Dysentery.
Price, William H.	Indiana.	Sulphate of Quinia.
Pritchett, James W.	Kentucky.	Inflammation of the Cervix Uteri.
Raudenbush, Abraham S.	Pennsylvania.	Diospyros Virginiana.
Reed, T. J.	Canada West.	Typhoid Fever.
Richardson, Newton M.	Pennsylvania.	Pathology of Asthma.
Richardson, William	Canada West.	Intermittent Fever.
Ridgway, Thomas Edwin	Pennsylvania.	Chronic Gastritis.
Risgrave, Joseph S.	New Jersey.	Chemistry applied to Medicine.
Rosenman, John	Ohio.	Enteric Fever.
Sharples, Abram	Pennsylvania.	Two Medical Cases.
Shew, Abraham Marvin	New York.	Mental Derangement.
Simon, William I.	Pennsylvania.	Aneurism.
Smith, Henry A. M.	Pennsylvania.	Scarlatina.
Smith, Jacob Jontz	Indiana.	Parental Influence on the Embryo.
Smith, John R.	Illinois.	Retention of Urine.
Steckel, Alfred P.	Pennsylvania.	Pleurisy.
Stewart, Joseph F.	Pennsylvania.	Infantile Remittent Fever.
Stockton, James Clark	Pennsylvania.	The Uterus and its Functions.
Stokes, J. Spencer	New Jersey.	Acute Rheumatism.
Sudler, William T.	Delaware.	Intermittent Fever.
Taylor, Robert W.	Kentucky.	Epidemic Erysipelas.
Thompson, James F.	Pennsylvania.	Physiology of Digestion.
Thomson, A. Agnew	Pennsylvania.	Rest and its Therapeutical Influence.
Thomson, Benjamin F.	Kentucky.	Pneumonia.
Tucker, James E.	Kentucky.	The Medical Student.
Underwood, Warren J.	Pennsylvania.	Circulation of the Blood.
Van Kirk, Theophilus R.	Pennsylvania.	Diphtheria.
Vannuys, D. H.	Indiana.	Pseudo-membranous Laryngitis.
Verner, Chittick	Pennsylvania.	Diabetes.
Wallace, James P.	Indiana.	Immediate and Remote Effects of Injuries of the Brain.
Weaver, Charles H.	New York.	Pyæmia.

NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Webster, John R. (M.D.)	Illinois.	Pneumonia.
West, Theodore S.	Virginia.	The Typhus Group of Fevers.
White, Elisha M.	Massachusetts.	Diarrhœa in the Army.
Wiley, Charles	New Jersey.	Diphtheria.
Willis, Samuel W.	Kentucky.	Cholera Maligna.
Witman, Harrison T.	Pennsylvania.	Veratrum Viride.
Woods, William S.	Missouri.	Inflammation.
Woodward, Charles E.	New Jersey.	Sarracenia Purpurea.
Worthington, William R.	Missouri.	Intermittent Fever.

Of the above, there are from—

Pennsylvania . . . .	54	Canada West . . . .	3
Kentucky . . . . .	16	New York . . . . .	2
Indiana . . . . .	9	Nova Scotia . . . . .	2
Ohio . . . . .	8	Vermont . . . . .	1
New Jersey . . . . .	7	Delaware . . . . .	1
Missouri . . . . .	6	California . . . . .	1
Illinois . . . . .	5	Western Virginia . . . .	1
Maryland . . . . .	3	Virginia . . . . .	1
Massachusetts . . . .	3	New Brunswick . . . .	1

124

## HARVARD UNIVERSITY.

### SUMMER SESSION OF THE MEDICAL DEPARTMENT.

THE Annual Course of Summer Instruction in the Medical Department of Harvard University will commence at the Massachusetts Medical College, in North Grove Street, Boston, on Monday, March 14, 1864, and continue till November.

Clinical, Medical and Surgical Instruction will be given at the Massachusetts General Hospital, adjoining the College.

Recitations from approved text-books will be held daily during the session at the College, upon all branches necessary to a medical education. Occasional lectures are also given, and demonstrations, illustrated by the Museums of the College.

During the Summer Session, instruction is given by lectures at Cambridge, on Botany, by Prof. Gray; on Comparative Anatomy, by Prof. Wyman; on Zoology, by Prof. Agassiz; on Acoustics and Optics, by Prof. Lovering. To these lectures, students of the Summer Session will be admitted without extra charge.

Good Board can be obtained at \$3 50 or \$5 00 per week.

Fees for the Summer Term (which must be paid in advance), \$100, without extra charge for Matriculation, Hospital, Library or Dissections; for six months, \$100; for three months, \$50.

D. HUMPHREYS STORER, M. D., Professor of Obstetrics and Medical Jurisprudence.  
 JOHN B. S. JACKSON, M. D., Professor of Morbid Anatomy.  
 HENRY I. BOWDITCH, M. D., Professor of Clinical Medicine.  
 OLIVER W. HOLMES, M. D., Professor of Anatomy and Physiology.  
 GEORGE C. SHATTUCK, M. D., Hersey Professor of the Theory and Practice of Medicine.

HENRY J. BIGELOW, M. D., Professor of Surgery and Clinical Surgery.

JOHN BACON, M. D., Professor of Chemistry.

EDWARD H. CLARK, M. D., Professor of Materia Medica.

DAVID W. CHEEVER, M. D., Demonstrator.

WM. E. COALE, M. D., Assistant in Theory and Practice.

FRANCIS MINOT, M. D., Assistant in Theory and Practice.

RICHARD M. HODGES, M. D., Assistant in Surgery.

CALVIN ELLIS, M. D., Assistant in Morbid Anatomy.

J. NELSON BORLAND, M. D., Assistant in Clinical Medicine.

JAMES C. WHITE, M. D., Assistant in Chemistry.

FITCH E. OLIVER, M. D., Assistant in Materia Medica.

HORATIO R. STORER, M. D., Assistant in Obstetrics.

Tickets to the Session must be procured before students will be admitted to the Course.

D. HUMPHREYS STORER, Dean of the Faculty,  
 No. 182 Tremont Street, Boston.

Circulars can be obtained gratis, upon application to David Clapp, Medical and Surgical Journal Office, over 834 Washington Street, Boston. Jan. 1st, 1864.

[Jan. and April.]

# BLANCHARD & LEA'S MEDICAL AND SURGICAL PUBLICATIONS.

## TO THE READERS OF THE MEDICAL JOURNAL.

The greatly enhanced cost of materials and labor has at length obliged us to make a small increase in the price of some of our books, and we have been forced in a few instances to change the style of binding from leather to cloth, in consequence of the increased difficulty of procuring a full supply of the superior quality of leather which we require for our publications. We have made these changes with reluctance, and can only hope that we may not be forced to further modifications by a continued increase of cost.


For the present, therefore, the prices on this Catalogue are those at which our books can generally be furnished by booksellers, who can readily procure for their customers any which they may not have on hand. Where access to bookstores is not convenient, we will forward them at these prices, *free by mail*, to any post office in the United States. In all cases the amount must accompany the order, as we open accounts only with dealers; we assume no risks of the mail, either on the money or the books, and we can supply nothing but our own publications. Gentlemen desirous of purchasing will, therefore, find it more advantageous to deal with the nearest bookseller whenever practicable, or to send orders through their merchants visiting the larger cities.

BLANCHARD & LEA.

PHILADELPHIA, April, 1864.

\* \* We have recently issued an **ILLUSTRATED CATALOGUE** of Medical and Scientific Publications, forming an octavo pamphlet of 80 large pages, containing specimens of illustrations, notices of the medical press, &c. &c. It has been prepared without regard to expense, and will be found one of the handsomest specimens of typographical execution as yet presented in this country. Copies will be sent to any address, by mail, free of postage, on receipt of nine cents in stamps.

Catalogues of our numerous publications in miscellaneous and educational literature forwarded on application.

 The attention of physicians is especially solicited to the following important new works and new editions, just issued or nearly ready:—

Bowman's Medical Chemistry, a new edition, . . . . .	See page	580
Bowman's Practical Chemistry, a new edition, . . . . .	"	580
Bennett on the Uterus, sixth edition, . . . . .	"	560
Bumstead on Venereal, second edition, . . . . .	"	581
Barclay on Medical Diagnosis, third edition, . . . . .	"	551
Brande and Taylor's Chemistry, . . . . .	"	582
Dalton's Human Physiology, 3d edition, . . . . .	"	587
Dunglison's Medical Dictionary, a revised edition, . . . . .	"	588
Ellis' Formulary, new edition, . . . . .	"	589
Erichsen's System of Surgery, a revised edition, . . . . .	"	590
Flint on the Heart, . . . . .	"	590
Gross's System of Surgery, second edition, . . . . .	"	592
Gray's Anatomy, Descriptive and Surgical, 2d edition, . . . . .	"	593
Hamilton on Fractures and Dislocations, second edition, . . . . .	"	594
Hodge's Midwifery, . . . . .	"	595
Meigs' Obstetrics, fourth edition, . . . . .	"	597
Parrish's Practical Pharmacy, a new edition, . . . . .	"	601
Stille's Therapeutics and Materia Medica, . . . . .	"	603
Simpson on Diseases of Women, . . . . .	"	603
Salter on Asthma, . . . . .	"	603
Sargent's Minor Surgery, new edition, . . . . .	"	604
Watson's Practice of Physic, . . . . .	"	606
Wilson on the Skin, fifth edition, . . . . .	"	607
West on Diseases of Women, second edition, . . . . .	"	608

NO INCREASE OF PRICE.

**TWO MEDICAL PERIODICALS, FREE OF POSTAGE,**

Containing about Fifteen Hundred large octavo pages,

**FOR FIVE DOLLARS PER ANNUM.**

**THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES,** subject to postage, when not paid for in advance, . . . . . \$5 00  
**THE MEDICAL NEWS AND LIBRARY,** invariably in advance, . . . . . 1 00  
 OR, BOTH PERIODICALS mailed, **FREE OF POSTAGE** (as long as the existing

It will be observed that notwithstanding the great increase in the cost of production, the subscription price has been maintained at the former very moderate rate, which has long rendered them among the

### CHEAPEST OF AMERICAN MEDICAL PERIODICALS.

The publishers trust that this course will be responded to by the profession in a liberal increase to the subscription list.

## THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES,

EDITED BY ISAAC HAYS, M. D.,

is published Quarterly, on the first of January, April, July, and October. Each number contains about two hundred and seventy large octavo pages, handsomely and appropriately illustrated, wherever necessary. It has now been issued regularly for more than forty years, and it has been under the control of the present editor for more than a quarter of a century. Throughout the long period, it has maintained its position in the highest rank of medical periodicals both at home and abroad, and has received the cordial support of the entire profession in this country. Its list of Collaborators will be found to contain a large number of the most distinguished names of the profession in every section of the United States, rendering the department devoted to

### ORIGINAL COMMUNICATIONS

full of varied and important matter, of great interest to all practitioners.

As the aim of the Journal, however, is to combine the advantages presented by all the different varieties of periodicals, in its

### REVIEW DEPARTMENT

will be found extended and impartial reviews of all important new works, presenting subjects of novelty and interest, together with very numerous

### BIBLIOGRAPHICAL NOTICES,

including nearly all the medical publications of the day, both in this country and Great Britain, with a choice selection of the more important continental works. This is followed by the

### QUARTERLY SUMMARY,

being a very full and complete abstract, methodically arranged, of the

### IMPROVEMENTS AND DISCOVERIES IN THE MEDICAL SCIENCES.

This department of the Journal, so important to the practising physician, is the object of especial care on the part of the editor. It is classified and arranged under different heads, thus facilitating the researches of the reader in pursuit of particular subjects, and will be found to present a very full and accurate digest of all observations, discoveries, and inventions recorded in every branch of medical science. The very extensive arrangements of the publishers are such as to afford to the editor complete materials for this purpose, as he not only regularly receives

### ALL THE AMERICAN MEDICAL AND SCIENTIFIC PERIODICALS,

but also twenty or thirty of the more important Journals issued in Great Britain and on the Continent, thus enabling him to present in a convenient compass a thorough and complete abstract of everything interesting or important to the physician occurring in any part of the civilized world.

To their old subscribers, many of whom have been on their list for twenty or thirty years, the publishers feel that no promises for the future are necessary; but those who may desire for the first time to subscribe, can rest assured that no exertion will be spared to maintain the Journal in the high position which it has occupied for so long a period.

By reference to the terms it will be seen that, in addition to this large amount of valuable and practical information on every branch of medical science, the subscriber, by paying in advance, becomes entitled, without further charge, to

### THE MEDICAL NEWS AND LIBRARY,

a monthly periodical of thirty-two large octavo pages. Its "NEWS DEPARTMENT" presents the current information of the day, while the "LIBRARY DEPARTMENT" is devoted to presenting standard works on various branches of medicine. Within a few years, subscribers have thus received, without expense, many works of the highest character and practical value, such as "Watson's Practice," "Todd and Bowman's Physiology," "Malgaigne's Surgery," "West on Children," "West on Females, Part I.," "Habershon on the Alimentary Canal," "Simpson on Females," &c.

The work selected for the year 1864, commencing in the number for January, is

### CONSUMPTION; ITS EARLY AND REMEDIABLE STAGES.

BY EDWARD SMITH, M. D.,

Assistant Physician to the Brompton Consumption Hospital, &c.

The special experience of the author in the treatment of this disease invests his work with practical authority which cannot but render it satisfactory to subscribers.

It will thus be seen that for the small sum of FIVE DOLLARS, paid in advance, the subscriber will obtain a Quarterly and a Monthly periodical,

### EMBRACING ABOUT FIFTEEN HUNDRED LARGE OCTAVO PAGES.

Those subscribers who do not pay in advance will bear in mind that their subscription of Five Dollars will entitle them to the Journal only, without the News, and that they will be at the expense of their own postage on the receipt of each number. The advantage of a remittance when ordering the Journal will thus be apparent.

Remittances of subscriptions can be mailed at our risk, when a certificate is taken from the Postmaster that the money is duly inclosed and forwarded.



ASHTON (T. J.),

Surgeon to the Bismarck Dispensary, &amp;c.

**ON THE DISEASES, INJURIES, AND MALFORMATIONS OF THE RECTUM AND ANUS;** with remarks on Habitual Constipation. From the third and enlarged London edition. With handsome illustrations. In one very beautifully printed octavo volume, of about 300 pages, extra cloth. \$2 00.

The most complete one we possess on the subject. *Medico-Chirurgical Review.*

We are satisfied, after a careful examination of the volume, and a comparison of its contents with those of its leading predecessors and contemporaries, that the best way for the reader to avail himself of

the excellent advice given in the concluding paragraph above, would be to provide himself with a copy of the book from which it has been taken, and diligently to con its instructive pages. They may secure to him many a triumph and fervent blessing.—*Am. Journal Med. Sciences.*

ALLEN (J. M.), M. D.,

Professor of Anatomy in the Pennsylvania Medical College, &amp;c.

**THE PRACTICAL ANATOMIST;** or, The Student's Guide in the Dissecting-ROOM. With 266 illustrations. In one handsome royal 12mo. volume, of over 600 pages, extra cloth. \$2 25.

We believe it to be one of the most useful works upon the subject ever written. It is handsomely illustrated, well printed, and will be found of convenient size for use in the dissecting-room.—*Med. Examiner.*

However valuable may be the "Dissector's Guides" which we, of late, have had occasion to

notice, we feel confident that the work of Dr. Allen is superior to any of them. We believe with the author, that none is so fully illustrated as this, and the arrangement of the work is such as to facilitate the labors of the student. We most cordially recommend it to their attention.—*Western Lancet.*

ANATOMICAL ATLAS.

By Professors H. H. SMITH and W. E. HORNER, of the University of Pennsylvania. 1 vol. 8vo., extra cloth, with nearly 650 illustrations. *See SMITH, p. 28.*

ABEL (F. A.), F. C. S. AND C. L. BLOXAM.

**HANDBOOK OF CHEMISTRY,** Theoretical, Practical, and Technical; with a Recommendaory Preface by Dr. HOFMANN. In one large octavo volume, extra cloth, of 662 pages, with illustrations. \$3 25.

ASHWELL (SAMUEL), M. D.,

Obstetric Physician and Lecturer to Guy's Hospital, London.

**A PRACTICAL TREATISE ON THE DISEASES PECULIAR TO WOMEN.**

Illustrated by Cases derived from Hospital and Private Practice. Third American, from the Third and revised London edition. In one octavo volume, extra cloth, of 528 pages. \$3 00.

The most useful practical work on the subject in the English language.—*Boston Med. and Surg. Journal.*

The most able, and certainly the most standard and practical, work on female diseases that we have yet seen.—*Medico-Chirurgical Review.*

ARNOTT (NEILL), M. D.

**ELEMENTS OF PHYSICS;** or Natural Philosophy, General and Medical.

Written for universal use, in plain or non-technical language. A new edition, by ISAAC HAYS, M. D. Complete in one octavo volume, leather, of 484 pages, with about two hundred illustrations. \$2 50.

BIRD (GOLDING), A. M., M. D., &amp;c.

**URINARY DEPOSITS: THEIR DIAGNOSIS, PATHOLOGY, AND**

**THERAPEUTICAL INDICATIONS.** Edited by EDMUND LLOYD BRACKETT, M. D. A new American, from the last and enlarged London edition. With eighty illustrations on wood. In one handsome octavo volume, of about 400 pages, extra cloth. \$2 75. (*Just Ready.*)

It can scarcely be necessary for us to say anything of the merits of this well-known Treatise, which so admirably brings into practical application the results of those microscopical and chemical researches regarding the physiology and pathology of the urinary secretion, which have contributed so much to the increase of our diagnostic powers, and

to the extension and satisfactory employment of our therapeutic resources. In the preparation of this new edition of his work, it is obvious that Dr. Golding Bird has spared no pains to render it a faithful representation of the present state of scientific knowledge on the subject it embraces.—*British and Foreign Med.-Chir. Review.*

BENNETT (J. HUGHES), M. D., F. R. S. E.,

Professor of Clinical Medicine in the University of Edinburgh, &amp;c.

**THE PATHOLOGY AND TREATMENT OF PULMONARY TUBERCULOSIS,** and on the Local Medication of Pharyngeal and Laryngeal Diseases frequently mistaken for or associated with, Phthisis. One vol. 8vo., extra cloth, with wood-cuts. pp. 130. \$1 25.

BARLOW (GEORGE H.), M. D.

Physician to Guy's Hospital, London, &amp;c.

**A MANUAL OF THE PRACTICE OF MEDICINE.** With Additions by D. F. CONDIS, M. D., author of "A Practical Treatise on Diseases of Children," &c. In one handsome octavo volume, extra cloth, of over 600 pages. \$2 75.

We recommend Dr. Barlow's Manual in the warmest manner as a most valuable vade-mecum. We found it clear, concise, practical, and sound.—*Boston Med. and Surg. Journal.*

**BUDD (GEORGE), M. D., F. R. S.,**

Professor of Medicine in King's College, London.

**ON DISEASES OF THE LIVER.** Third American, from the third and enlarged London edition. In one very handsome octavo volume, extra cloth, with four beautifully colored plates, and numerous wood-cuts. pp. 500. \$3 00.

Has fairly established for itself a place among the classical medical literature of England.—*British and Foreign Medico-Chir. Review.*

Dr. Budd's Treatise on Diseases of the Liver is now a standard work in Medical literature, and during the intervals which have elapsed between the successive editions, the author has incorporated into

the text the most striking novelties which have characterized the recent progress of hepatic physiology and pathology; so that although the size of the book is not perceptibly changed, the history of liver diseases is made more complete, and is kept upon a level with the progress of modern science. It is the best work on Diseases of the Liver in any language.—*London Med. Times and Gazette.*

**BUCKNILL (J. C.), M. D.,**

AND

**DANIEL H. TUKE, M. D.,**

Medical Superintendent of the Devon Lunatic Asylum. Visiting Medical Officer to the York Retreat.

**A MANUAL OF PSYCHOLOGICAL MEDICINE;** containing the History, Nosology, Description, Statistics, Diagnosis, Pathology, and Treatment of INSANITY. With a Plate. In one handsome octavo volume, of 536 pages, extra cloth. \$3 00.

The increase of mental disease in its various forms, and the difficult questions to which it is constantly giving rise, render the subject one of daily enhanced interest, requiring on the part of the physician a constantly greater familiarity with this, the most perplexing branch of his profession. Yet until the appearance of the present volume there has been for some years no work accessible in this country, presenting the results of recent investigations in the Diagnosis and Prognosis of Insanity, and the greatly improved methods of treatment which have done so much in alleviating the condition or restoring the health of the insane.

**BENNETT (HENRY), M. D.**

**A PRACTICAL TREATISE ON INFLAMMATION OF THE UTERUS, ITS CERVIX AND APPENDAGES,** and on its connection with Uterine Disease. Sixth American, from the fourth and revised English edition. In one octavo volume, of about 500 pages, extra cloth. \$3 50. (*Just Ready.*)

**BROWN (ISAAC BAKER),**

Surgeon-Accoucheur to St. Mary's Hospital, &c.

**ON SOME DISEASES OF WOMEN ADMITTING OF SURGICAL TREATMENT.** With handsome illustrations. One vol. 8vo., extra cloth, pp. 276. \$1 60.

Mr. Brown has earned for himself a high reputation in the operative treatment of sundry diseases and injuries to which females are peculiarly subject. We can truly say of his work that it is an important addition to obstetrical literature. The operative suggestions and contrivances which Mr. Brown describes, exhibit much practical sagacity and skill, and merit the careful attention of every surgeon-accoucheur.—*Association Journal.*

We have no hesitation in recommending this book to the careful attention of all surgeons who make female complaints a part of their study and practice.—*Dublin Quarterly Journal.*

**BOWMAN (JOHN E.), M. D.**

**PRACTICAL HANDBOOK OF MEDICAL CHEMISTRY.** Edited by C. L. BLOXAM. Third American, from the fourth and revised English Edition. In one neat volume, royal 12mo., extra cloth, with numerous illustrations. pp. 351. \$1 75. (*Now Ready, May, 1863.*)

Of this well-known handbook we may say that it retains all its old simplicity and clearness of arrangement and description, whilst it has received from the able editor those finishing touches which the progress of chemistry has rendered necessary.—*London Med. Times and Gazette*, Nov. 29, 1862.

Nor is anything hurried over, anything shirked; open the book where you will, you find the same careful treatment of the subject manifested, and the best process for the attainment of the particular ob-

ject in view lucidly detailed and explained. And this new edition is not merely a reprint of the last. With a laudable desire to keep the book up to the scientific mark of the present age, every improvement in analytical method has been introduced. In conclusion, we would only say that, familiar from long acquaintance with each page of the former issues of this little book, we gladly place beside them another presenting so many acceptable improvements and additions.—*Dublin Medical Press.*

BY THE SAME AUTHOR.

**INTRODUCTION TO PRACTICAL CHEMISTRY, INCLUDING ANALYSIS.** Third American, from the third and revised London edition. With numerous illustrations. In one neat vol., royal 12mo., extra cloth. \$1 75. (*Just Ready.*)

This favorite little manual has received a very thorough and careful revision at the hands of a competent editor, and will be found fully brought up to the present condition of chemical science. Many portions have been rewritten, the subjects of the blow-pipe and volumetric analysis have received special attention, and an additional chapter has been appended. Students of practical chemistry will therefore find it, as heretofore, a most convenient and condensed text-book and guide in the operations of the laboratory.

**BEALE ON THE LAWS OF HEALTH IN RELATION TO MIND AND BODY.** A Series of Letters from an old Practitioner to a Patient. In one volume, royal 12mo., extra cloth. pp. 296. 50 cents.

**SUSHNAN'S PHYSIOLOGY OF ANIMAL AND VEGETABLE LIFE;** a Popular Treatise on the Functions and Phenomena of Organic Life. In one handsome royal 12mo. volume, extra cloth, with over 100 illustrations. pp. 324. 50 cents.

**BUCKLER ON THE ETIOLOGY, PATHOLOGY, AND TREATMENT OF FIBRO-BRONCHITIS AND RHEUMATIC PNEUMONIA.** In one 8vo. volume, extra cloth. pp. 150. \$1 25.

**BLOOD AND URINE (MANUALS ON). BY JOHN WILLIAM GRIFFITH, G. OWEN REESE, AND ALFRED MARKWICK.** In thick volume, royal 12mo., extra cloth, with plates. pp. 460. \$1 25.

**BRODIE'S CLINICAL LECTURES ON SUR-**

**BUMSTEAD (FREEMAN J.) M. D.,**

Lecturer on Venereal Diseases at the College of Physicians and Surgeons, New York, &amp;c.

**THE PATHOLOGY AND TREATMENT OF VENEREAL DISEASES,** including the results of recent investigations upon the subject. Second edition, thoroughly revised and much improved. With illustrations on wood. In one very handsome octavo volume, of about 700 pages. (*Nearly Ready.*)

By far the most valuable contribution to this particular branch of practice that has seen the light within the last score of years. His clear and accurate descriptions of the various forms of venereal disease, and especially the methods of treatment he proposes, are worthy of the highest encomium. In these respects it is better adapted for the assistance of the every-day practitioner than any other with which we are acquainted. In variety of methods proposed, in minuteness of direction, guided by careful discrimination of varying forms and complications, we write down the book as unsurpassed. It is a work which should be in the possession of every practitioner.—*Chicago Med. Journal*. Nov. 1861.

The foregoing admirable volume comes to us, embracing the whole subject of syphilology, resolving many a doubt, correcting and confirming many an entertained opinion, and in our estimation the best, completest, fullest monograph on this subject in our language. As far as the author's labors themselves are concerned, we feel it a duty to say that he has not only exhausted his subject, but he has presented to us, without the slightest hyperbole, the best digested treatise on these diseases in our language. He has carried its literature down to the present moment, and has achieved his task in a manner which cannot but redound to his credit.—*British American Journal*, Oct. 1861.

We believe this treatise will come to be regarded as high authority in this branch of medical practice, and we cordially commend it to the favorable notice of our brethren in the profession. For our own part, we candidly confess that we have received many new ideas from its perusal, as well as modified many views which we have long, and, as we now think, erroneously entertained on the subject of syphilis.

To sum up all in a few words, this book is one which no practising physician or medical student can very well afford to do without.—*American Med. Times*, Nov. 2, 1861.

The whole work presents a complete history of venereal diseases, comprising much interesting and valuable material that has been spread through medical journals within the last twenty years—the period of many experiments and investigations on the subject—the whole carefully digested by the aid of the author's extensive personal experience, and offered to the profession in an admirable form. Its completeness is secured by good plates, which are especially full in the anatomy of the genital organs. We have examined it with great satisfaction, and congratulate the medical profession in America on the nationality of a work that may fairly be called original.—*Berkshire Med. Journal*, Dec. 1861.

One thing, however, we are impelled to say, that we have met with no other book on syphilis, in the English language, which gave so full, clear, and impartial views of the important subjects on which it treats. We cannot, however, refrain from expressing our satisfaction with the full and perspicuous manner in which the subject has been presented, and the careful attention to minute details, so useful—not to say indispensable—in a practical treatise. In conclusion, if we may be pardoned the use of a phrase now become stereotyped, but which we here employ in all seriousness and sincerity, we do not hesitate to express the opinion that Dr. Bumstead's Treatise on Venereal Diseases is a "work without which no medical library will hereafter be considered complete."—*Boston Med. and Surg. Journal*, Sept. 5, 1861.

**BARCLAY (A. W.), M. D.,**

Assistant Physician to St. George's Hospital, &amp;c.

**A MANUAL OF MEDICAL DIAGNOSIS; being an Analysis of the Signs and Symptoms of Disease.** Third American from the second and revised London edition. In one neat octavo volume, extra cloth, of 451 pages. \$3 25. (*Just Ready.*)

The demand for a second edition of this work shows that the vacancy which it attempts to supply has been recognized by the profession, and that the efforts of the author to meet the want have been successful. The revision which it has enjoyed will render it better adapted than before to afford assistance to the learner in the prosecution of his studies, and to the practitioner who requires a convenient and accessible manual for speedy reference in the exigencies of his daily duties. For this latter purpose its complete and extensive Index renders it especially valuable, offering facilities for immediately turning to any class of symptoms, or any variety of disease.

The task of composing such a work is neither an easy nor a light one; but Dr. Barclay has performed it in a manner which meets our most unqualified approbation. He is no mere theorist; he knows his work thoroughly, and in attempting to perform it, has not exceeded his powers.—*British Med. Journal*.

We venture to predict that the work will be deservedly popular, and soon become, like Watson's Practice, an indispensable necessity to the practitioner.—*N. A. Med. Journal*.

An inestimable work of reference for the young practitioner and student.—*Nashville Med. Journal*.

We hope the volume will have an extensive circulation, not among students of medicine only, but practitioners also. They will never regret a faithful study of its pages.—*Cincinnati Lancet*.

An important acquisition to medical literature. It is a work of high merit, both from the vast importance of the subject upon which it treats, and also from the real ability displayed in its elaboration. In conclusion, let us bespeak for this volume that attention of every student of our art which it so richly deserves—that place in every medical library which it can so well adorn.—*Pennsular Medical Journal*.

**BARTLETT (ELISHA), M. D.****THE HISTORY, DIAGNOSIS, AND TREATMENT OF THE FEVERS OF THE UNITED STATES.** A new and revised edition. By ALONZO CLARK, M. D., Prof. of Pathology and Practical Medicine in the N. Y. College of Physicians and Surgeons, &c. In one octavo volume, of six hundred pages, extra cloth. Price \$3 00.

It is a work of great practical value and interest, containing much that is new relative to the several diseases of which it treats, and, with the additions of the editor, is fully up to the times. The distinctive features of the different forms of fever are plainly and forcibly portrayed, and the lines of demarcation carefully and accurately drawn, and to the American practitioner is a more valuable and safe guide than any work on fever extant.—*Ohio Med. and Surg. Journal*.

stood deservedly high since its first publication. It will be seen that it has now reached its fourth edition under the supervision of Prof. A. Clark, a gentleman who, from the nature of his studies and pursuits, is well calculated to appreciate and discuss the many intricate and difficult questions in pathology. His annotations add much to the interest of the work, and have brought it well up to the condition of the science as it exists at the present day in regard to this class of diseases.—*Southern Med.*

BRANDE (WM. T.) D. C. L., and ALFRED S. TAYLOR, M. D., F. R. S.  
Of her Majesty's Mint, &c. Professor of Chemistry and Medical Jurisprudence in  
Guy's Hospital.

**CHEMISTRY.** In one handsome 8vo. volume of 696 pages, extra cloth. \$3 50.  
(Now Ready, May, 1863)

"Having been engaged in teaching Chemistry in this Metropolis, the one for a period of forty, and the other for a period of thirty years, it has appeared to us that, in spite of the number of books already existing, there was room for an additional volume, which should be especially adapted for the use of students. In preparing such a volume for the press, we have endeavored to bear in mind, that the student in the present day has much to learn, and but a short time at his disposal for the acquisition of this learning."—AUTHORS' PREFACE.

In reprinting this volume, its passage through the press has been superintended by a competent chemist, who has sedulously endeavored to secure the accuracy so necessary in a work of this nature. No notes or additions have been introduced, but the publishers have been favored by the authors with some corrections and revisions of the first twenty-one chapters, which have been duly inserted.

In so progressive a science as Chemistry, the latest work always has the advantage of presenting the subject as modified by the results of the latest investigations and discoveries. That this advantage has been made the most of, and that the work possesses superior attractions arising from its clearness, simplicity of style, and lucid arrangement, are manifested by the unanimous testimony of the English medical press.

It needs no great sagacity to foretell that this book will be, literally, the Handbook in Chemistry of the student and practitioner. For clearness of language, accuracy of description, extent of information, and freedom from pedantry and mysticism of modern chemistry, no other text-book comes into competition with it. The result is a work which for fulness of matter, for lucidity of arrangement, for clearness of style, is as yet without a rival. And long will it be without a rival. For, although with the necessary advance of chemical knowledge addenda will be required, there will be little to take away. The fundamental excellences of the book will remain, preserving it for years to come, what it now is, the best guide to the study of Chemistry yet given to the world.—*London Lancet*, Dec. 20, 1862.

Most assuredly, time has not abated one whit of the fluency, the vigor, and the clearness with which they not only have composed the work before us, but have, so to say, cleared the ground for it, by hitting right

and left at the affectation, mysticism, and obscurity which pervade some late chemical treatises. Thus conceived, and worked out in the most sturdy, common sense method, this book gives, in the clearest and most summary method possible, all the facts and doctrines of chemistry, with more especial reference to the wants of the medical student.—*London Medical Times and Gazette*, Nov. 29, 1862.

If we are not very much mistaken, this book will occupy a place which none has hitherto held among chemists; for, by avoiding the errors of previous authors, we have a work which, for its size, is certainly the most perfect of any in the English language. There are several points to be noted in this volume which separate it widely from any of its competitors—its wide application, not to the medical student only, nor to the student in chemistry merely, but to every branch of science, art, or commerce which is in any way connected with the domain of chemistry.—*London Med. Review*, Feb. 1863.

BARWELL (RICHARD), F. R. C. S.,

Assistant Surgeon Charing Cross Hospital, &c.

**A TREATISE ON DISEASES OF THE JOINTS.** Illustrated with engravings on wood. In one very handsome octavo volume, of about 500 pages, extra cloth; \$3 00.

At the outset we may state that the work is worthy of much praise, and bears evidence of much thoughtful and careful inquiry, and here and there of no slight originality. We have already carried this notice further than we intended to do, but not to the extent the work deserves. We can only add, that the perusal of it has afforded us great pleasure. The author has evidently worked very hard at his subject, and his investigations into the Physiology and Pathology of Joints have been carried on in a manner which entitles him to be listened to with attention and respect. We must not omit to mention the very admirable plates with which the volume is enriched. We seldom meet with such striking

and faithful delineations of disease.—*London Med. Times and Gazette*, Feb. 9, 1861.

This volume will be welcomed, as the record of much honest research and careful investigation into the nature and treatment of a most important class of disorders. We cannot conclude this notice of a valuable and useful book without calling attention to the amount of *bona fide* work it contains. It is no slight matter for a volume to show laborious investigation, and at the same time original thought, on the part of its author, whom we may congratulate on the successful completion of his arduous task.—*London Lancet*, March 9, 1861.

CARPENTER (WILLIAM B.), M. D., F. R. S., &c.,

Examiner in Physiology and Comparative Anatomy in the University of London.

**THE MICROSCOPE AND ITS REVELATIONS.** With an Appendix containing the Applications of the Microscope to Clinical Medicine, &c. By F. G. SMITH, M. D. Illustrated by four hundred and thirty-four beautiful engravings on wood. In one large and very handsome octavo volume, of 724 pages, extra cloth, \$4 50.

The great importance of the microscope as a means of diagnosis, and the number of microscopists who are also physicians, have induced the American publishers, with the author's approval, to add an Appendix, carefully prepared by Professor Smith, on the applications of the instrument to clinical medicine, together with an account of American Microscopes, their modifications and accessories. This portion of the work is illustrated with nearly one hundred wood-cuts, and, it is hoped, will adapt the volume more particularly to the use of the American student.

Those who are acquainted with Dr. Carpenter's previous writings on Animal and Vegetable Physiology, will fully understand how vast a store of knowledge he is able to bring to bear upon so comprehensive a subject as the revelations of the microscope; and even those who have no previous acquaintance with the construction or uses of this instrument, will find abundance of information conveyed in clear and simple language.—*Med. Times and Gazette*

The additions by Prof. Smith give it a positive claim upon the profession, for which we doubt not he will receive their sincere thanks. Indeed, we know not where the student of medicine will find such a complete and satisfactory collection of microscopic facts bearing upon physiology and practical medicine as is contained in Prof. Smith's appendix; and this of itself, it seems to us, is fully worth the cost of the volume.—*J. Quinilla, M.D., Editor*

CARPENTER (WILLIAM B.), M. D., F. R. S.,

Examiner in Physiology and Comparative Anatomy in the University of London.

**PRINCIPLES OF HUMAN PHYSIOLOGY;** with their chief applications to Psychology, Pathology, Therapeutics, Hygiene, and Forensic Medicine. A new American, from the last and revised London edition. With nearly three hundred illustrations. Edited, with additions, by FRANCIS GURNEY SMITH, M. D., Professor of the Institutes of Medicine in the Pennsylvania Medical College, &c. In one very large and beautiful octavo volume, of about nine hundred large pages, handsomely printed, extra cloth, \$4 50; strongly bound in leather, with raised bands, \$5 00.

For upwards of thirteen years Dr. Carpenter's work has been considered by the profession generally, both in this country and England, as the most valuable compendium on the subject of physiology in our language. This distinction it owes to the high attainments and unwearied industry of its accomplished author. The present edition (which, like the last American one, was prepared by the author himself), is the result of such extensive revision, that it may almost be considered a new work. We need hardly say, in concluding this brief notice, that while the work is indispensable to every student of medicine in this country, it will amply repay the practitioner for its perusal by the interest and value of its contents.—*British Med. and Surg. Journal*.

This is a standard work—the text-book used by all medical students who read the English language. It has passed through several editions in order to keep pace with the rapidly growing science of Physiology. Nothing need be said in its praise, for its merits are universally known; we have nothing to say of its defects, for they only appear where the science of which it treats is incomplete.—*Western Lancet*.

The most complete exposition of physiology which any language can at present give.—*Brit. and For. Med.-Chirurg. Review*.

The greatest, the most reliable, and the best book on the subject which we know of in the English language.—*Stethoscope*.

To enlarge this great work would be superfluous. We should observe, however, that in this edition the author has remodelled a large portion of the former, and the editor has added much matter of interest, especially in the form of illustrations. We may confidently recommend it as the most complete work on Human Physiology in our language.—*Southern Med. and Surg. Journal*.

The most complete work on the science in our language.—*Am. Med. Journal*.

The most complete work now extant in our language.—*N. O. Med. Register*.

The best text-book in the language on this extensive subject.—*London Med. Times*.

A complete cyclopædia of this branch of science.—*N. Y. Med. Times*.

The profession of this country, and perhaps also of Europe, have anxiously and for some time awaited the announcement of this new edition of Carpenter's Human Physiology. His former editions have for many years been almost the only text-book on Physiology in all our medical schools, and its circulation among the profession has been unsurpassed by any work in any department of medical science.

It is quite unnecessary for us to speak of this work as its merits would justify. The mere announcement of its appearance will afford the highest pleasure to every student of Physiology, while its perusal will be of infinite service in advancing physiological science.—*Ohio Med. and Surg. Journ*

BY THE SAME AUTHOR.

**ELEMENTS (OR MANUAL) OF PHYSIOLOGY, INCLUDING PHYSIOLOGICAL ANATOMY.** Second American, from a new and revised London edition. With one hundred and ninety illustrations. In one very handsome octavo volume, leather. pp. 566. \$3 00.

In publishing the first edition of this work, its title was altered from that of the London volume: by the substitution of the word "Elements" for that of "Manual," and with the author's sanction the title of "Elements" is still retained as being more expressive of the scope of the treatise.

BY THE SAME AUTHOR.

**PRINCIPLES OF COMPARATIVE PHYSIOLOGY.** New American, from the Fourth and Revised London edition. In one large and handsome octavo volume, with over three hundred beautiful illustrations. pp. 752. Extra cloth, \$5 25.

This book should not only be read but thoroughly studied by every member of the profession. None are too wise or old, to be benefited thereby. But especially to the younger class would we cordially commend it as best fitted of any work in the English language to qualify them for the reception and comprehension of those truths which are daily being developed in physiology.—*Medical Counsellor*.

Without pretending to it, it is an encyclopædia of the subject, accurate and complete in all respects—a truthful reflection of the advanced state at which the science has now arrived.—*Dublin Quarterly Journal of Medical Science*.

A truly magnificent work—in itself a perfect physiological study.—*Rankin's Abstract*.

This work stands without its fellow. It is one few men in Europe could have undertaken; it is one

no man, we believe, could have brought to so successful an issue as Dr. Carpenter. It required for its production a physiologist at once deeply read in the labors of others, capable of taking a general, critical, and unprejudiced view of those labors, and of combining the varied, heterogeneous materials at his disposal, so as to form an harmonious whole. We feel that this abstract can give the reader a very imperfect idea of the fulness of this work, and no idea of its unity, of the admirable manner in which material has been brought, from the most various sources, to conduce to its completeness, of the lucidity of the reasoning it contains, or of the clearness of language in which the whole is clothed. Not the profession only, but the scientific world at large must feel deeply indebted to Dr. Carpenter for this great work. It must, indeed, add largely even to his high reputation.—*Medical Times*.

BY THE SAME AUTHOR. (*Preparing*.)

**PRINCIPLES OF GENERAL PHYSIOLOGY, INCLUDING ORGANIC CHEMISTRY AND HISTOLOGY.** With a General Sketch of the Vegetable and Animal Kingdom. In one large and very handsome octavo volume, with several hundred illustrations.

BY THE SAME AUTHOR.

**A PRIZE ESSAY ON THE USE OF ALCOHOLIC LIQUORS IN HEALTH**

CONDIE (D. F.), M. D., &amp;c.

**A PRACTICAL TREATISE ON THE DISEASES OF CHILDREN.** Fifth edition, revised and augmented. In one large volume, 8vo., extra cloth, of over 750 pages. \$3.25.

In presenting a new and revised edition of this favorite work, the publishers have only to state that the author has endeavored to render it in every respect "a complete and faithful exposition of the pathology and therapeutics of the maladies incident to the earlier stages of existence—a full and exact account of the diseases of infancy and childhood." To accomplish this he has subjected the whole work to a careful and thorough revision, rewriting a considerable portion, and adding several new chapters. In this manner it is hoped that any deficiencies which may have previously existed have been supplied, that the recent labors of practitioners and observers have been thoroughly incorporated, and that in every point the work will be found to maintain the high reputation it has enjoyed as a complete and thoroughly practical book of reference in infantile affections.

A few notices of previous editions are subjoined.

Dr. Condie's scholarship, acumen, industry, and practical sense are manifested in this, as in all his numerous contributions to science.—*Dr. Holmes's Report to the American Medical Association.*

Taken as a whole, in our judgment, Dr. Condie's Treatise is the one from the perusal of which the practitioner in this country will rise with the greatest satisfaction.—*Western Journal of Medicine and Surgery.*

One of the best works upon the Diseases of Children in the English language.—*Western Lancet.*

We feel assured from actual experience that no physician's library can be complete without a copy of this work.—*N. Y. Journal of Medicine.*

A veritable pediatric encyclopedia, and an honor to American medical literature.—*Ohio Medical and Surgical Journal.*

We feel persuaded that the American medical profession will soon regard it not only as a very good, but as the VERY BEST "Practical Treatise on the Diseases of Children."—*American Medical Journal.*

In the department of infantile therapeutics, the work of Dr. Condie is considered one of the best which has been published in the English language.—*The Stethoscope.*

We pronounced the first edition to be the best work on the diseases of children in the English language, and notwithstanding all that has been published, we still regard it in that light.—*Medical Examiner.*

The value of works by native authors on the diseases which the physician is called upon to combat, will be appreciated by all; and the work of Dr. Condie has gained for itself the character of a safe guide for students, and a useful work for consultation by those engaged in practice.—*N. Y. Med. Times.*

This is the fourth edition of this deservedly popular treatise. During the interval since the last edition, it has been subjected to a thorough revision by the author; and all new observations in the pathology and therapeutics of children have been included in the present volume. As we said before, we do not know of a better book on diseases of children, and to a large part of its recommendations we yield an unhesitating concurrence.—*Buffalo Med. Journal.*

Perhaps the most full and complete work now before the profession of the United States; indeed, we may say in the English language. It is vastly superior to most of its predecessors.—*Transylvanian Med. Journal.*

CHRISTISON (ROBERT), M. D., V. P. R. S. E., &amp;c.

**A DISPENSATORY; or, Commentary on the Pharmacopœias of Great Britain and the United States; comprising the Natural History, Description, Chemistry, Pharmacy, Actions, Uses, and Doses of the Articles of the Materia Medica.** Second edition, revised and improved, with a Supplement containing the most important New Remedies. With copious Additions, and two hundred and thirteen large wood-engravings. By R. EGLESFIELD GRIFFITH, M. D. In one very large and handsome octavo volume, extra cloth, of over 1000 pages. \$3.50.

COOPER (BRANSBY B.), F. R. S.

**LECTURES ON THE PRINCIPLES AND PRACTICE OF SURGERY.** In one very large octavo volume, extra cloth, of 750 pages. \$3.00.

**COOPER ON DISLOCATIONS AND FRACTURES OF THE JOINTS.**—Edited by BRANSBY B. COOPER, F. R. S., &c. With additional Observations by Prof. J. C. WARREN. A new American edition. In one handsome octavo volume, extra cloth, of about 500 pages, with numerous illustrations on wood. \$3.25.

**COOPER ON THE ANATOMY AND DISEASES OF THE BREAST,** with twenty-five Miscellaneous and Surgical Papers. One large volume, imperial 8vo., extra cloth, with 253 figures, on 36 plates. \$2.50.

**COOPER ON THE STRUCTURE AND DISEASES OF THE TESTIS, AND ON THE THYMUS GLAND.** One vol. imperial 8vo., extra cloth, with 177 figures on 29 plates. \$3.00.

**COPLAND ON THE CAUSES, NATURE, AND TREATMENT OF PALSY AND APOPLEXY.** In one volume, royal 12mo., extra cloth. pp. 326. 80 cents.

**CLYMER ON FEVERS; THEIR DIAGNOSIS, PATHOLOGY, AND TREATMENT.** In one octavo volume, leather, of 600 pages. \$1.50.

**COLOMBAT DE L'ISERE ON THE DISEASES OF FEMALES,** and on the special Hygiene of their Sex. Translated, with many Notes and Additions, by C. D. MILES, M. D. Second edition, revised and improved. In one large volume, octavo, leather, with numerous wood-cuts. pp. 728. \$3.50.

CARSON (JOSEPH), M. D.,

Professor of Materia Medica and Pharmacy in the University of Pennsylvania.

**SYNOPSIS OF THE COURSE OF LECTURES ON MATERIA MEDICA AND PHARMACY,** delivered in the University of Pennsylvania. With three Lectures on the Modus Operandi of Medicines. Third edition, revised. In one handsome octavo volume. (Now Ready.) \$2.25.

CURLING (T. B.), F. R. S.,

Surgeon to the London Hospital, President of the Hunterian Society, &c.

**A PRACTICAL TREATISE ON DISEASES OF THE TESTIS, SPERMATIC CORD, AND SCROTUM.** Second American, from the second and enlarged English edi-

# CHURCHILL (FLEETWOOD), M. D., M. R. I. A.

**ON THE THEORY AND PRACTICE OF MIDWIFERY.** A new American from the fourth revised and enlarged London edition. With Notes and Additions, by D. FRANCIS CONNIX, M. D., author of a "Practical Treatise on the Diseases of Children," &c. With 194 illustrations. In one very handsome octavo volume, of nearly 700 large pages, extra cloth, \$3 50.

This work has been so long an established favorite, both as a text-book for the learner and as a reliable aid in consultation for the practitioner, that in presenting a new edition it is only necessary to call attention to the very extended improvements which it has received. Having had the benefit of two revisions by the author since the last American reprint, it has been materially enlarged, and Dr. Churchill's well-known conscientious industry is a guarantee that every portion has been thoroughly brought up with the latest results of European investigation in all departments of the science and art of obstetrics. The recent date of the last Dublin edition has not left much of novelty for the American editor to introduce, but he has endeavored to insert whatever has since appeared, together with such matters as his experience has shown him would be desirable for the American student, including a large number of illustrations. With the sanction of the author he has added in the form of an appendix, some chapters from a little "Manual for Midwives and Nurses," recently issued by Dr. Churchill, believing that the details there presented can hardly fail to prove of advantage to the junior practitioner. The result of all these additions is that the work now contains fully one-half more matter than the last American edition, with nearly one-half more illustrations, so that notwithstanding the use of a smaller type, the volume contains almost two hundred pages more than before.

No effort has been spared to secure an improvement in the mechanical execution of the work equal to that which the text has received, and the volume is confidently presented as one of the handsomest that has thus far been laid before the American profession; while the very low price at which it is offered should secure for it a place in every lecture-room and on every office table.

A better book in which to learn these important points we have not met than Dr. Churchill's. Every page of it is full of instruction; the opinion of all writers of authority is given on questions of difficulty, as well as the directions and advice of the learned author himself, to which he adds the result of statistical inquiry, putting statistics in their proper place and giving them their due weight, and no more. We have never read a book more free from professional jealousy than Dr. Churchill's. It appears to be written with the true design of a book on medicine, viz: to give all that is known on the subject of which he treats, both theoretically and practically, and to advance such opinions of his own as he believes will benefit medical science, and insure the safety of the patient. We have said enough to convey to the profession that this book of Dr. Churchill's is admirably suited for a book of reference for the practitioner, as well as a text-book for the student, and we hope it may be extensively purchased amongst our readers. To them we most strongly recommend it.—*Dublin Medical Press.*

To bestow praise on a book that has received such marked approbation would be superfluous. We need only say, therefore, that if the first edition was thought worthy of a favorable reception by the medical public, we can confidently affirm that this will be found much more so. The lecturer, the practitioner, and the student, may all have recourse to its pages, and derive from their perusal much interest and instruction in everything relating to theoretical and practical midwifery.—*Dublin Quarterly Journal of Medical Science.*

A work of very great merit, and such as we can confidently recommend to the study of every obstetric practitioner.—*London Medical Gazette.*

Few treatises will be found better adapted as a text-book for the student, or as a manual for the frequent consultation of the young practitioner.—*American Medical Journal.*

Were we reduced to the necessity of having but one work on midwifery, and permitted to choose, we would unhesitatingly take Churchill.—*Western Med. and Surg. Journal.*

It is impossible to conceive a more useful and elegant manual than Dr. Churchill's Practice of Midwifery.—*Provincial Medical Journal.*

Certainly, in our opinion, the very best work on the subject which exists.—*N. Y. Analyst.*

No work holds a higher position, or is more deserving of being placed in the hands of the tyro, the advanced student, or the practitioner.—*Medical Examiner.*

Previous editions have been received with marked favor, and they deserved it; but this, reprinted from a very late Dublin edition, carefully revised and brought up by the author to the present time, does present an unusually accurate and able exposition of every important particular embraced in the department of midwifery. \* \* The clearness, directness, and precision of its teachings, together with the great amount of statistical research which its text exhibits, have served to place it already in the foremost rank of works in this department of remedial science.—*N. O. Med. and Surg. Journal.*

In our opinion, it forms one of the best if not the very best text-book and epitome of obstetric science which we at present possess in the English language.—*Monthly Journal of Medical Science.*

The clearness and precision of style in which it is written, and the great amount of statistical research which it contains, have served to place it in the first rank of works in this department of medical science.—*N. Y. Journal of Medicine.*

This is certainly the most perfect system extant. It is the best adapted for the purposes of a text-book, and that which he whose necessities confine him to one book, should select in preference to all others.—*Southern Medical and Surgical Journal.*

BY THE SAME AUTHOR. (Lately Published.)

**ON THE DISEASES OF INFANTS AND CHILDREN.** Second American Edition, revised and enlarged by the author. Edited, with Notes, by W. V. KEATING, M. D. In one large and handsome volume, extra cloth, of over 700 pages. \$3 25.

In preparing this work a second time for the American profession, the author has spared no labor in giving it a very thorough revision, introducing several new chapters, and rewriting others, while every portion of the volume has been subjected to a severe scrutiny. The efforts of the American editor have been directed to supplying such information relative to matters peculiar to this country as might have escaped the attention of the author, and the whole may, therefore, be safely pronounced one of the most complete works on the subject accessible to the American Profession. By an alteration in the size of the page, these very extensive additions have been accommodated without unduly increasing the size of the work.

BY THE SAME AUTHOR.

**ESSAYS ON THE PUERPERAL FEVER, AND OTHER DISEASES PECULIAR TO WOMEN.** Selected from the writings of British Authors previous to the close of

**CHURCHILL (FLEETWOOD), M. D., M. R. I. A., &c.**

**ON THE DISEASES OF WOMEN;** including those of Pregnancy and Child-bed. A new American edition, revised by the Author. With Notes and Additions, by D. FRANKS CONDIE, M. D., author of "A Practical Treatise on the Diseases of Children." With numerous illustrations. In one large and handsome octavo volume, extra cloth, of 768 pages. \$3 00.

This edition of Dr. Churchill's very popular treatise may almost be termed a new work, as thoroughly has he revised it in every portion. It will be found greatly enlarged, and completely brought up to the most recent condition of the subject, while the very handsome series of illustrations introduced, representing such pathological conditions as can be accurately portrayed, present a novel feature, and afford valuable assistance to the young practitioner. Such additions as appeared desirable for the American student have been made by the editor, Dr. Condie, while a marked improvement in the mechanical execution keeps pace with the advance in all other respects which the volume has undergone, while the price has been kept at the former very moderate rate.

It comprises, unquestionably, one of the most exact and comprehensive expositions of the present state of medical knowledge in respect to the diseases of women that has yet been published.—*Am. Journ. Med. Sciences.*

This work is the most reliable which we possess on this subject; and is deservedly popular with the profession.—*Charleston Med. Journal*, July, 1857.

We know of no author who deserves that approbation, on "the diseases of females," to the same

extent that Dr. Churchill does. His, indeed, is the only thorough treatise we know of on the subject; and it may be commended to practitioners and students as a masterpiece in its particular department.—*The Western Journal of Medicine and Surgery.*

As a comprehensive manual for students, or a work of reference for practitioners, it surpasses any other that has ever issued on the same subject from the British press.—*Dublin Quart. Journal.*

**DICKSON (S. H.), M. D.,**

Professor of Practice of Medicine in the Jefferson Medical College, Philadelphia.

**ELEMENTS OF MEDICINE;** a Compendious View of Pathology and Therapeutics, or the History and Treatment of Diseases. Second edition, revised. In one large and handsome octavo volume, of 750 pages, extra cloth. \$3 75.

The steady demand which has so soon exhausted the first edition of this work, sufficiently shows that the author was not mistaken in supposing that a volume of this character was needed—an elementary manual of practice, which should present the leading principles of medicine with the practical results, in a condensed and perspicuous manner. Disencumbered of unnecessary detail and fruitless speculations, it embodies what is most requisite for the student to learn, and at the same time what the active practitioner wants when obliged, in the daily calls of his profession, to refresh his memory on special points. The clear and attractive style of the author renders the whole easy of comprehension, while his long experience gives to his teachings an authority everywhere acknowledged. Few physicians, indeed, have had wider opportunities for observation and experience, and few, perhaps, have used them to better purpose. As the result of a long life devoted to study and practice, the present edition, revised and brought up to the date of publication, will doubtless maintain the reputation already acquired as a condensed and convenient American text-book on the Practice of Medicine.

**DRUITT (ROBERT), M. R. C. S., &c.**

**THE PRINCIPLES AND PRACTICE OF MODERN SURGERY.** A new and revised American from the eighth enlarged and improved London edition. Illustrated with four hundred and thirty-two wood-engravings. In one very handsomely printed octavo volume of nearly 700 large pages, extra cloth, \$3 50.

A work which like DRUITT'S SURGERY has for so many years maintained the position of a leading favorite with all classes of the profession, needs no special recommendation to attract attention to a revised edition. It is only necessary to state that the author has spared no pains to keep the work up to its well earned reputation of presenting in a small and convenient compass the latest condition of every department of surgery, considered both as a science and as an art; and that the services of a competent American editor have been employed to introduce whatever novelties may have escaped the author's attention, or may prove of service to the American practitioner. As several editions have appeared in London since the issue of the last American reprint, the volume has had the benefit of repeated revisions by the author, resulting in a very thorough alteration and improvement. The extent of these additions may be estimated from the fact that it now contains about one-third more matter than the previous American edition, and that notwithstanding the adoption of a smaller type, the pages have been increased by about one hundred, while nearly two hundred and fifty wood-cuts have been added to the former list of illustrations.

A marked improvement will also be perceived in the mechanical and artistical execution of the work, which, printed in the best style, on new type, and fine paper, leaves little to be desired as regards external finish; while at the very low price affixed it will be found one of the cheapest volumes accessible to the profession.

This popular volume, now a most comprehensive work on surgery, has undergone many corrections, improvements, and additions, and the principles and the practice of the art have been brought down to the latest record and observation. Of the operations in surgery it is impossible to speak too highly. The descriptions are so clear and concise, and the illustrations so accurate and numerous, that the student can have no difficulty, with instrument in hand, and back by his side, over the dead body, in obtaining

nothing of real practical importance has been omitted; it presents a faithful epitome of everything relating to surgery up to the present hour. It is deservedly a popular manual, both with the student and practitioner.—*London Lancet*, Nov. 19, 1859.

In closing this brief notice, we recommend as cordially as ever this most useful and comprehensive hand-book. It must prove a vast assistance, not only to the student of surgery, but also to the busy



**DALTON, JR. (J. C.), M. D.**

Professor of Physiology in the College of Physicians, New York.

**A TREATISE ON HUMAN PHYSIOLOGY**, designed for the use of Students and Practitioners of Medicine. Third edition, revised, with nearly three hundred illustrations on wood. In one very beautiful octavo volume, of 700 pages, extra cloth, \$4 50. (*Just Ready, 1864.*)

The rapid demand for another edition of this work sufficiently shows that the author has succeeded in his efforts to produce a text-book of standard and permanent value, embodying within a moderate compass all that is definitely and positively known within the domain of Human Physiology. His high reputation as an original observer and investigator, is a guarantee that in again revising it he has introduced whatever is necessary to render it thoroughly on a level with the advanced science of the day, and this has been accomplished without unduly increasing the size of the volume.

No exertion has been spared to maintain the high standard of typographical execution which has rendered this work admittedly one of the handsomest volumes as yet produced in this country.

It will be seen, therefore, that Dr. Dalton's best efforts have been directed towards perfecting his work. The additions are marked by the same features which characterize the remainder of the volume, and render it by far the most desirable text-book on physiology to place in the hands of the student which, so far as we are aware, exists in the English language, or perhaps in any other. We therefore have no hesitation in recommending Dr. Dalton's book for the classes for which it is intended, satisfied as we are that it is better adapted to their use than any other work of the kind to which they have access.—*American Journal of the Medical Sciences*, April, 1861.

It is, therefore, no disparagement to the many books upon physiology, most excellent in their day, to say that Dalton's is the only one that gives us the science as it was known to the best philosophers throughout the world, at the beginning of the current year. It states in comprehensive but concise fashion, the facts established by experiment, or other method of demonstration, and details, in an understandable manner, how it is done, but abstains from the discussion of unsettled or theoretical points. In this it is unique; and these characteristics render it a text-book without a rival, for those who aspire to study physiological science as it is known to its most successful cultivators. And it is physiology thus presented that lies at the foundation of correct pathological knowledge; and this in turn is the basis of rational therapeutics; so that pathology, in fact, becomes of prime importance in the proper discharge of our every-day practical duties.—*Cincinnati Lancet*, May, 1861.

Dr. Dalton needs no word of praise from us. He is universally recognized as among the first, if not the very first, of American physiologists now living. His first edition of his admirable work appeared but 70 years since, and the advance of science, his

own original views and experiments, together with a desire to supply what he considered some deficiencies in the first edition, have already made the present one a necessity, and it will no doubt be even more eagerly sought for than the first. That it is not merely a reprint, will be seen from the author's statement of the following principal additions and alterations which he has made. The present, like the first edition, is printed in the highest style of the printer's art, and the illustrations are truly admirable for their clearness in expressing exactly what their author intended.—*Boston Medical and Surgical Journal*, March 28, 1861.

It is unnecessary to give a detail of the additions; suffice it to say, that they are numerous and important, and such as will render the work still more valuable and acceptable to the profession as a learned and original treatise on this all-important branch of medicine. All that was said in commendation of the getting up of the first edition, and the superior style of the illustrations, apply with equal force to this. No better work on physiology can be placed in the hand of the student.—*St. Louis Medical and Surgical Journal*, May, 1861.

These additions, while testifying to the learning and industry of the author, render the book exceedingly useful, as the most complete exposé of a science, of which Dr. Dalton is doubtless the ablest representative on this side of the Atlantic.—*New Orleans Med. Times*, May, 1861.

A second edition of this deservedly popular work having been called for in the short space of two years, the author has supplied deficiencies, which existed in the former volume, and has thus more completely fulfilled his design of presenting to the profession a reliable and precise text-book, and one which we consider the best outline on the subject of which it treats, in any language.—*N. American Medico-Chirurg. Review*, May, 1861.

**DUNGLISON, FORBES, TWEEDIE, AND CONOLLY.**

**THE CYCLOPÆDIA OF PRACTICAL MEDICINE**: comprising Treatises on the Nature and Treatment of Diseases, Materia Medica, and Therapeutics, Diseases of Women and Children, Medical Jurisprudence, &c. &c. In four large super-royal octavo volumes, of 2254 double-columned pages, strongly and handsomely bound, with raised bands. \$12 00.

\* \* \* This work contains no less than four hundred and eighteen distinct treatises, contributed by eighty-eight distinguished physicians, rendering it a complete library of reference for the country practitioner.

The most complete work on Practical Medicine tant; or, at least, in our language.—*Buffalo Medical and Surgical Journal*.

For reference, it is above all price to every practitioner.—*Western Lancet*.

One of the most valuable medical publications of the day—as a work of reference it is invaluable.—*Western Journal of Medicine and Surgery*.

It has been to us, both as learner and teacher, a work for ready and frequent reference, one in which modern English medicine is exhibited in the most rantageous light.—*Medical Examiner*.

The editors are practitioners of established reputation, and the list of contributors embraces many of the most eminent professors and teachers of London, Edinburgh, Dublin, and Glasgow. It is, indeed, the great merit of this work that the principal articles have been furnished by practitioners who have not only devoted special attention to the diseases about which they have written, but have also enjoyed opportunities for an extensive practical acquaintance with them and whose reputation carries the assurance of their competency justly to appreciate the opinions of others, while it stamps their own doctrines with high and just authority.—*American Medical Journal*.

## DUNGLISON (ROBLEY), M. D.,

Professor of Institutes of Medicine in the Jefferson Medical College, Philadelphia.

## NEW AND ENLARGED EDITION.

**MEDICAL LEXICON; a Dictionary of Medical Science, containing a concise Explanation of the various Subjects and Terms of Anatomy, Physiology, Pathology, Hygiene, Therapeutics, Pharmacology, Pharmacy, Surgery, Obstetrics, Medical Jurisprudence, Dentistry, &c. Notices of Climate and of Mineral Waters; Formulæ for Official, Empirical, and Dietetic Preparations, &c. With French and other Synonymes. Revised and very greatly enlarged. In one very large and handsome octavo volume, of 992 double-columned pages, in small type; strongly bound in leather. Price \$4 00.**

Especial care has been devoted in the preparation of this edition to render it in every respect worthy a continuance of the very remarkable favor which it has hitherto enjoyed. The rapid sale of FIFTEEN large editions, and the constantly increasing demand, show that it is regarded by the profession as the standard authority. Stimulated by this fact, the author has endeavored in the present revision to introduce whatever might be necessary "to make it a satisfactory and desirable—if not indispensable—lexicon, in which the student may search without disappointment for every term that has been legitimated in the nomenclature of the science." To accomplish this, large additions have been found requisite, and the extent of the author's labors may be estimated from the fact that about SIX THOUSAND subjects and terms have been introduced throughout, rendering the whole number of definitions about SIXTY THOUSAND, to accommodate which, the number of pages has been increased by nearly a hundred, notwithstanding an enlargement in the size of the page. The medical press, both in this country and in England, has pronounced the work indispensable to all medical students and practitioners, and the present improved edition will not lose that enviable reputation.

The publishers have endeavored to render the mechanical execution worthy of a volume of such universal use in daily reference. The greatest care has been exercised to obtain the typographical accuracy so necessary in a work of the kind. By the small but exceedingly clear type employed, an immense amount of matter is condensed in its thousand ample pages, while the binding will be found strong and durable. With all these improvements and enlargements, the price has been kept at the former very moderate rate, placing it within the reach of all.

This work, the appearance of the fifteenth edition of which, it has become our duty and pleasure to announce, is perhaps the most stupendous monument of labor and erudition in medical literature. One would hardly suppose after constant use of the preceding editions, where we have never failed to find a sufficiently full explanation of every medical term, that in this edition "*about six thousand subjects and terms have been added*," with a careful revision and correction of the entire work. It is only necessary to announce the advent of this edition to make it occupy the place of the preceding one on the table of every medical man, as it is without doubt the best and most comprehensive work of the kind which has ever appeared.—*Buffalo Med. Journ.*, Jan. 1866.

The work is a monument of patient research, skilful judgment, and vast physical labor, that will perpetuate the name of the author more effectually than any possible device of stone or metal. Dr. Dunglison deserves the thanks not only of the American profession, but of the whole medical world.—*North Am. Medico-Chir. Review*, Jan. 1866.

A Medical Dictionary better adapted for the wants of the profession than any other with which we are acquainted, and of a character which places it far above comparison and competition.—*Am. Journ. Med. Sciences*, Jan. 1866.

We need only say, that the addition of 6,000 new terms, with their accompanying definitions, may be said to constitute a new work, by itself. We have examined the Dictionary attentively, and are most happy to pronounce it unrivalled of its kind. The erudition displayed, and the extraordinary industry which must have been demanded, in its preparation and perfection, redound to the lasting credit of its author, and have furnished us with a volume *indispensable* at the present day, to all who would find themselves at ease with the highest standards of medical information.—*Boston Medical and Surgical Journal*, Dec. 31, 1867.

Good lexicons and encyclopedic works generally, are the most labor-saving contrivances which literary men enjoy; and the labor which is required to produce them in the perfect manner of this example is something appalling to contemplate. The author

tells us in his preface that he has added about six thousand terms and subjects to this edition, which, before, was considered universally as the best work of the kind in any language.—*Silliman's Journal*, March, 1866.

He has razed his gigantic structure to the foundations, and remodelled and reconstructed the entire pile. No less than six thousand additional subjects and terms are illustrated and analyzed in this new edition, swelling the grand aggregate to beyond sixty thousand! Thus is placed before the profession a complete and thorough exponent of medical terminology, without rival or possibility of rivalry.—*Nashville Journ. of Med. and Surg.*, Jan. 1866.

It is universally acknowledged, we believe, that this work is incomparably the best and most complete Medical Lexicon in the English language. The amount of labor which the distinguished author has bestowed upon it is truly wonderful, and the learning and research displayed in its preparation are equally remarkable. Comment and commendation are unnecessary, as no one at the present day thinks of purchasing any other Medical Dictionary than this.—*St. Louis Med. and Surg. Journ.*, Jan. 1866.

It is the foundation stone of a good medical library, and should always be included in the first list of books purchased by the medical student.—*Am. Med. Monthly*, Jan. 1866.

A very perfect work of the kind, undoubtedly the most perfect in the English language.—*Med. and Surg. Reporter*, Jan. 1866.

It is now emphatically the Medical Dictionary of the English language, and for it there is no substitute.—*N. H. Med. Journ.*, Jan. 1866.

It is scarcely necessary to remark that any medical library wanting a copy of Dunglison's Lexicon must be imperfect.—*Cin. Lancet*, Jan. 1866.

We have ever considered it the best authority published, and the present edition we may safely say has no equal in the world.—*Peninsular Med. Journal*, Jan. 1866.

The most complete authority on the subject to be found in any language.—*Va. Med. Journal*, Feb. '66.

• BY THE SAME AUTHOR.

**THE PRACTICE OF MEDICINE. A Treatise on Special Pathology and Therapeutics. Third Edition. In two large octavo volumes, leather, of 1,500 pages. \$6 25.**

**DUNGLISON (ROBLEY), M. D.,**

Professor of Institutes of Medicine in the Jefferson Medical College, Philadelphia.

**HUMAN PHYSIOLOGY.** Eighth edition. Thoroughly revised and extensively modified and enlarged, with five hundred and thirty-two illustrations. In two large and handsomely printed octavo volumes, extra cloth, of about 1500 pages. \$7 00.

In revising this work for its eighth appearance, the author has spared no labor to render it worthy of continuance of the very great favor which has been extended to it by the profession. The whole contents have been rearranged, and to a great extent remodelled; the investigations which of late years have been so numerous and so important, have been carefully examined and incorporated, and the work in every respect has been brought up to a level with the present state of the subject. The object of the author has been to render it a concise but comprehensive treatise, containing the whole body of physiological science, to which the student and man of science can at all times refer with the certainty of finding whatever they are in search of, fully presented in all its aspects; and in no former edition has the author bestowed more labor to secure this result.

We believe that it can truly be said, no more complete repository of facts upon the subject treated, can anywhere be found. The author has, moreover, but enviable tact at description and that facility and ease of expression which render him peculiarly acceptable to the casual, or the studious reader. This faculty, so requisite in setting forth many graver and less attractive subjects, lends additional charms to one always fascinating.—*Boston Med. and Surg. Journal.*

The most complete and satisfactory system of Physiology in the English language.—*Amer. Med. Journal.*

The best work of the kind in the English language.—*Silliman's Journal.*

The present edition the author has made a perfect mirror of the science as it is at the present hour. As a work upon physiology proper, the science of the functions performed by the body, the student will find it all he wishes.—*Nashville Journ. of Med.*

That he has succeeded, most admirably succeeded in his purpose, is apparent from the appearance of an eighth edition. It is now the great encyclopedia on the subject, and worthy of a place in every physician's library.—*Western Lancet.*

BY THE SAME AUTHOR. (A new edition.)

**GENERAL THERAPEUTICS AND MATERIA MEDICA;** adapted for a Medical Text-book. With Indexes of Remedies and of Diseases and their Remedies. SIXTH EDITION, revised and improved. With one hundred and ninety-three illustrations. In two large and handsomely printed octavo vols., extra cloth, of about 1100 pages. \$6 00.

In announcing a new edition of Dr. Dunglison's General Therapeutics and Materia Medica, we have no words of commendation to bestow upon a work whose merits have been heretofore so often and so justly extolled. It must not be supposed, however, that the present is a mere reprint of the previous edition; the character of the author for laborious research, judicious analysis, and clearness of expression, is fully sustained by the numerous additions he has made to the work, and the careful revision to which he has subjected the whole.—*N. A. Medicine-Chir. Review*, Jan. 1868.

The work will, we have little doubt, be bought and read by the majority of medical students; its size, arrangement, and reliability recommend it to all; no one, we venture to predict, will study it without profit, and there are few to whom it will not be in some measure useful as a work of reference. The young practitioner, more especially, will find the copious indexes appended to this edition of great assistance in the selection and preparation of suitable formulæ.—*Charleston Med. Journ. and Review*, Jan. 1868.

BY THE SAME AUTHOR. (A new Edition.)

**NEW REMEDIES, WITH FORMULÆ FOR THEIR PREPARATION AND ADMINISTRATION.** Seventh edition, with extensive Additions. In one very large octavo volume, extra cloth, of 770 pages. \$3 75.

One of the most useful of the author's works.—*Southern Medical and Surgical Journal.*

This elaborate and useful volume should be found in every medical library, for as a book of reference, for physicians, it is unsurpassed by any other work in existence, and the double index for diseases and for remedies, will be found greatly to enhance its value.—*New York Med. Gazette.*

The great learning of the author, and his remarkable industry in pushing his researches into every source whence information is derivable, have enabled him to throw together an extensive mass of facts and statements, accompanied by full reference to authorities; which last feature renders the work practically valuable to investigators who desire to examine the original papers.—*The American Journal of Pharmacy.*

**ELLIS (BENJAMIN), M. D.**

**THE MEDICAL FORMULARY:** being a Collection of Prescriptions, derived from the writings and practice of many of the most eminent physicians of America and Europe. Together with the usual Dietetic Preparations and Antidotes for Poisons. To which is added an Appendix, on the Endermic use of Medicines, and on the use of Ether and Chloroform. The whole accompanied with a few brief Pharmacæutic and Medical Observations. Eleventh edition, carefully revised and much extended by ROBERT P. THOMAS, M. D., Professor of Materia Medica in the Philadelphia College of Pharmacy. In one volume, 8vo., of about 350 pages. \$2 25. (Just Ready.)

On no previous edition of this work has there been so complete and thorough a revision. The extensive changes in the new United States Pharmacopœia have necessitated corresponding alter-

## ERICHSEN (JOHN),

Professor of Surgery in University College, London, &amp;c.

**THE SCIENCE AND ART OF SURGERY; BEING A TREATISE ON SURGICAL**

**INJURIES, DISEASES, AND OPERATIONS.** New and improved American, from the second enlarged and carefully revised London edition. Illustrated with over four hundred engravings on wood. In one large and handsome octavo volume, of one thousand closely printed pages, extra cloth, \$4 50; leather, raised bands. \$5 25.

The very distinguished favor with which this work has been received on both sides of the Atlantic has stimulated the author to render it even more worthy of the position which it has so rapidly attained as a standard authority. Every portion has been carefully revised, numerous additions have been made, and the most watchful care has been exercised to render it a complete exponent of the most advanced condition of surgical science. In this manner the work has been enlarged by about a hundred pages, while the series of engravings has been increased by more than a hundred, rendering it one of the most thoroughly illustrated volumes before the profession. The additions of the author having rendered unnecessary most of the notes of the former American editor, but little has been added in this country; some few notes and occasional illustrations have, however, been introduced to elucidate American modes of practice.

It is, in our humble judgment, decidedly the best book of the kind in the English language. Strange that just such books are not oftener produced by public teachers of surgery in this country and Great Britain. Indeed, it is a matter of great astonishment, but no less true than astonishing, that of the many works on surgery republished in this country within the last fifteen or twenty years as text-books for medical students, this is the only one that even approximates to the fulfilment of the peculiar wants of young men just entering upon the study of this branch of the profession.—*Western Jour. of Med. and Surgery.*

Its value is greatly enhanced by a very copious well-arranged index. We regard this as one of the most valuable contributions to modern surgery. To one entering his novitiate of practice, we regard it the most serviceable guide which he can consult. He will find a fulness of detail leading him through every

step of the operation, and not deserting him until the final issue of the case is decided.—*Sethscape.*

Embracing, as will be perceived, the whole surgical domain, and each division of itself almost complete and perfect, each chapter full and explicit, each subject faithfully exhibited, we can only express our estimate of it in the aggregate. We consider it as excellent contribution to surgery, as probably the best single volume now extant on the subject, and with great pleasure we add it to our text-books.—*Nashville Journal of Medicine and Surgery.*

Prof. Erichsen's work, for its size, has not been surpassed; his nine hundred and eight pages, profusely illustrated, are rich in physiological, pathological, and operative suggestions, doctrines, details, and processes; and will prove a reliable resource for information, both to physician and surgeon, in the hour of peril.—*N. O. Med. and Surg. Journal.*

## FLINT (AUSTIN), M. D.,

Professor of the Theory and Practice of Medicine in the University of Louisville, &amp;c.

**PHYSICAL EXPLORATION AND DIAGNOSIS OF DISEASES AFFECTING THE RESPIRATORY ORGANS.** In one large and handsome octavo volume, extra cloth, 636 pages. \$3 00.

We regard it, in point both of arrangement and of the marked ability of its treatment of the subjects, as destined to take the first rank in works of this class. So far as our information extends, it has at present no equal. To the practitioner, as well as the student, it will be invaluable in clearing up the diagnosis of doubtful cases, and in shedding light upon difficult phenomena.—*Buffalo Med. Journal.*

A work of original observation of the highest merit. We recommend the treatise to every one who wishes to become a correct auscultator. Based to a very large extent upon cases numerically examined, it carries the evidence of careful study and discrimination upon every page. It does credit to the author, and, through him, to the profession in this country. It is, what we cannot call every book upon auscultation, a readable book.—*Am. Jour. Med. Sciences.*

This volume belongs to a class of works which confer honor upon their authors and enrich the domain of practical medicine. A cursory examination even will satisfy the scientific physician that Dr. Flint in this treatise has added to medical literature

a work based upon original observation, and possessing no ordinary merit.—*N. Y. Journal of Med.*

This is an admirable book, and because of its extraordinary clearness and entire mastery of the subjects discussed, has made itself indispensable to those who are ambitious of a thorough knowledge of physical exploration.—*Nashville Journ. of Med.*

The arrangement of the subjects discussed is easy, natural, such as to present the facts in the most forcible light. Where the author has avoided being tediously minute or diffuse, he has nevertheless fully amplified the more important points. In this respect, indeed, his labors will take precedence, and be the means of inviting to this useful department more general attention.—*O. Med. and Surg. Journ.*

We hope these few extracts taken from Dr. Flint's work may convey some idea of its character and importance. We would, however, advise every physician to at once place it in his library, feeling assured that it may be consulted with great benefit both by young and old.—*Louisville Review.*

BY THE SAME AUTHOR. (Now Ready.)

**A PRACTICAL TREATISE ON THE DIAGNOSIS, PATHOLOGY, AND TREATMENT OF DISEASES OF THE HEART.** In one neat octavo volume, of about 500 pages, extra cloth. \$2 75.

We do not know that Dr. Flint has written anything which is not first rate; but this, his latest contribution to medical literature, in our opinion, surpasses all the others. The work is most comprehensive in its scope, and most sound in the views it enunciates. The descriptions are clear and methodical; the statements are substantiated by facts, and are made with such simplicity and sincerity, that without them they would carry conviction. The style is admirably clear, direct, and free from dryness. With Dr. Walshe's excellent treatise before us, we have no hesitation in saying that Dr. Flint's book is the best work on the heart in the English language.—*Boston Med. and Surg. Journal.*

We have thus endeavored to present our readers

referring to employ the very words of the distinguished author, wherever it was possible, we have essayed to condense into the briefest space a general view of his observations and suggestions, and to direct the attention of our brethren to the abounding stores of valuable matter here collected and arranged for their use and instruction. No medical library will hereafter be considered complete without this volume; and we trust it will promptly find its way into the hands of every American student and physician.—*N. Am. Med. Chir. Review.*

With more than pleasure do we hail the advent of this work, for it fills a wide gap on the list of text-books for our schools, and is, for the practitioner, the most valuable practical work of the kind we

FOWNES (GEORGE), PH. D., &amp;c.

**MANUAL OF ELEMENTARY CHEMISTRY; Theoretical and Practical.**

With one hundred and ninety-seven illustrations. Edited by ROBERT BRIDGES, M. D. In one large royal 12mo. volume, of 600 pages, extra cloth, \$1 75.

The death of the author having placed the editorial care of this work in the practised hands of S. Benze Jones and A. W. Hoffman, everything has been done in its revision which experience would suggest to keep it on a level with the rapid advance of chemical science. The additions requisite to this purpose have necessitated an enlargement of the page, notwithstanding which the work has been increased by about fifty pages. At the same time every care has been used to retain its distinctive character as a condensed manual for the student, divested of all unnecessary detail or mere theoretical speculation. The additions have, of course, been mainly in the department of Organic Chemistry, which has made such rapid progress within the last few years, but equal attention has been bestowed on the other branches of the subject—Chemical Physics and Inorganic Chemistry—to present all investigations and discoveries of importance, and to keep up the reputation of the volume as a complete manual of the whole science, admirably adapted for the learner. By the use of a small but exceedingly clear type the matter of a large octavo is compressed within the convenient and portable limits of a moderate sized duodecimo, and at the very low price fixed, it is offered as one of the cheapest volumes before the profession.

Dr. Fownes' excellent work has been universally recognized everywhere in his own and this country, the best elementary treatise on chemistry in the English tongue, and is very generally adopted, we believe, as the standard text-book in all our colleges, both literary and scientific.—*Charleston Med. Journal & Review*.

A standard manual, which has long enjoyed the reputation of embodying much knowledge in a small space. The author has achieved the difficult task of condensation with masterly tact. His book is concise without being dry, and brief without being too general.—*Virginia Med. and Surgical Journal*.

The work of Dr. Fownes has long been before the public, and its merits have been fully appreciated as the best text-book on chemistry now in existence. We do not, of course, place it in a rank superior to the works of Brande, Graham, Turner, Gregory, or Gmelin, but we say that, as a work for students, it is preferable to any of them.—*London Journal of Medicine*.

A work well adapted to the wants of the student. It is an excellent exposition of the chief doctrines and facts of modern chemistry. The size of the work, and still more the condensed yet perspicuous style in which it is written, absolve it from the charges very properly urged against most manuals termed popular.—*Edinburgh Journal of Medical Sciences*.

**ISKE FUND PRIZE ESSAYS.—THE EFFECTS OF CLIMATE ON TUBERCULOUS DISEASE.** By EDWIN LEE, M. R. C. S., London, and **THE INFLUENCE OF PREGNANCY ON THE DEVELOPMENT OF TUBERCLES** By

EDWARD WARREN, M. D., of Edenton, N. C. Together in one neat 8vo. volume, extra cloth. \$1 00. **FRICK ON RENAL AFFECTIONS; their Diagnosis and Pathology.** With illustrations. One volume, royal 12mo., extra cloth. 75 cents.

FERGUSON (WILLIAM), F. R. S.,

Professor of Surgery in King's College, London, &c.

**A SYSTEM OF PRACTICAL SURGERY.** Fourth American, from the third and enlarged London edition. In one large and beautifully printed octavo volume, of about 700 pages, with 393 handsome illustrations, leather. \$3 00.

GRAHAM (THOMAS), F. R. S.

**THE ELEMENTS OF INORGANIC CHEMISTRY**, including the Applications of the Science in the Arts. New and much enlarged edition, by HENRY WATTS and ROBERT BRIDGES, M. D. Complete in one large and handsome octavo volume, of over 800 very large pages, with two hundred and thirty-two wood-cuts, extra cloth. \$4 50.

\* \* \* Part II., completing the work from p. 431 to end, with Index, Title Matter, &c., may be had separate, cloth backs and paper sides. Price \$2 50.

From Prof. E. N. Horsford, Harvard College.

It has, in its earlier and less perfect editions, been familiar to me, and the excellence of its plan and the clearness and completeness of its discussions, have long been my admiration.

No reader of English works on this science can

afford to be without this edition of Prof. Graham's Elements.—*Silliman's Journal*, March, 1868.

From Prof. Wolcott Gibbs, N. Y. Free Academy.

The work is an admirable one in all respects, and its republication here cannot fail to exert a positive influence upon the progress of science in this country.

GRIFFITH (ROBERT E.), M. D., &amp;c.

**A UNIVERSAL FORMULARY**, containing the methods of Preparing and Administering Official and other Medicines. The whole adapted to Physicians and Pharmacologists. SECOND EDITION, thoroughly revised, with numerous additions, by ROBERT P. THOMAS, M. D., Professor of Materia Medica in the Philadelphia College of Pharmacy. In one large and handsome octavo volume, extra cloth, of 650 pages, double columns. \$3 25.

It was a work requiring much perseverance, and when published was looked upon as by far the best work of its kind that had issued from the American press. Prof. Thomas has certainly "improved," as well as added to this Formulary, and has rendered it additionally deserving of the confidence of pharmacologists and physicians.—*Am. Journal of Pharmacy*.

We are happy to announce a new and improved edition of this one of the most valuable and useful works that have emanated from an American pen. It would do credit to any country, and will be found of daily usefulness to practitioners of medicine; it is better adapted to their purposes than the dispensatories.—*Southern Med. and Surg. Journal*.

It is one of the most useful books a country practitioner

This is a work of six hundred and fifty-one pages, embracing all on the subject of preparing and administering medicines that can be desired by the physician and pharmacist.—*Western Lancet*

The amount of useful, every-day matter for a practicing physician, is really immense.—*Boston Med. and Surg. Journal*.

This edition has been greatly improved by the revision and ample additions of Dr. Thomas, and is now, we believe, one of the most complete works of its kind in any language. The additions amount to about seventy pages, and no effort has been spared to include in them all the recent improvements. A work of this kind appears to us indispensable to the physician, and there is none we can more cordially

## GROSS (SAMUEL D.), M. D.,

Professor of Surgery in the Jefferson Medical College of Philadelphia, &amp;c.

Enlarged Edition.

**A SYSTEM OF SURGERY: Pathological, Diagnostic, Therapeutic, and Operative.** Illustrated by TWELVE HUNDRED and TWENTY-SEVEN ENGRAVINGS. Second edition, much enlarged and carefully revised. In two large and beautifully printed octavo volumes, about twenty-two hundred pages; strongly bound in leather. Price \$13.

The exhaustion in little more than two years of a large edition of so elaborate and comprehensive a work as this is the best evidence that the author was not mistaken in his estimate of the want which existed of a complete American System of Surgery, presenting the science in all its necessary details and in all its branches. That he has succeeded in the attempt to supply this want is shown not only by the rapid sale of the work, but also by the very favorable manner in which it has been received by the organs of the profession in this country and in Europe, and by the fact that a translation is now preparing in Holland—a mark of appreciation not often bestowed on any scientific work so extended in size.

The author has not been insensible to the kindness thus bestowed upon his labors, and in revising the work for a new edition he has spared no pains to render it worthy of the favor with which it has been received. Every portion has been subjected to close examination and revision; any deficiencies apparent have been supplied, and the results of recent progress in the science and art of surgery have been everywhere introduced; while the series of illustrations has been enlarged by the addition of nearly three hundred wood-cuts, rendering it one of the most thoroughly illustrated works ever laid before the profession. To accommodate these very extensive additions, the work has been printed upon a smaller type, so that notwithstanding the very large increase in the matter and value of the book, its size is more convenient and less cumbersome than before. Every care has been taken in the printing to render the typographical execution unexceptionable, and it is confidently presented as a work in every way worthy of a place in even the most limited library of the practitioner or student.

Has Dr. Gross satisfactorily fulfilled this object?

A careful perusal of his volumes enables us to give an answer in the affirmative. Not only has he given to the reader an elaborate and well-written account of his own vast experience, but he has not failed to embody in his pages the opinions and practices of surgeons in this and other countries of Europe. The result has been a work of such completeness, that it has no superior in the systematic treatises on surgery which have emanated from English or Continental authors. It has been justly objected that these have been far from complete in many essential particulars, many of them having been deficient in some of the most important points which should characterize such works. Some of them have been elaborate—too elaborate—with respect to certain diseases, while they have merely glanced at, or given an unsatisfactory account of, others equally important to the surgeon. Dr. Gross has avoided this error, and has produced the most complete work that has yet issued from the press on the science and practice of surgery. It is not, strictly speaking, a Dictionary of Surgery, but it gives to the reader all the information that he may require for his treatment of surgical diseases. Having said so much, it might appear superfluous to add another word; but it is only due to Dr. Gross to state that he has embraced the opportunity of transferring to his pages a vast number of engravings from English and other authors, illustrative of the pathology and treatment of surgical diseases. To these are added several hundred original wood-cuts. The work altogether commends itself to the attention of British surgeons, from whom it cannot fail to meet with extensive patronage.—*London Lancet*, Sept. 1, 1860.

Of Dr. Gross's treatise on Surgery we can say no more than that it is the most elaborate and complete work on this branch of the healing art which has ever been published in any country. A systematic work, it admits of no analytical review; but, did our space permit, we should gladly give some extracts from it, to enable our readers to judge of the classical style of the author, and the exhausting way in which each subject is treated.—*Dublin Quarterly Journal of Med. Science*.

The work is so superior to its predecessors in matter and extent, as well as in illustrations and style of publication, that we can honestly recommend it as the best work of the kind to be taken home by the young practitioner.—*Am. Med. Jour.*

With pleasure we record the completion of this long-anticipated work. The reputation which the author has for many years sustained, both as a surgeon and as a writer, had prepared us to expect a treatise of great excellence and originality; but we confess we were by no means prepared for the work which is before us—the most complete treatise upon surgery ever published, either in this or any other country, and we might, perhaps, safely say, the most original. There is no subject belonging properly to surgery which has not received from the author a due share of attention. Dr. Gross has supplied a want in surgical literature which has long been felt by practitioners; he has furnished us with a complete practical treatise upon surgery in all its departments. As Americans, we are proud of the achievement; as surgeons, we are most sincerely thankful to him for his extraordinary labors in our behalf.—*N. Y. Review and Buffalo Med. Journal*.

BY THE SAME AUTHOR.

**ELEMENTS OF PATHOLOGICAL ANATOMY.** Third edition, thoroughly revised and greatly improved. In one large and very handsome octavo volume, with about three hundred and fifty beautiful illustrations, of which a large number are from original drawings, extra cloth. \$4 75.

The very rapid advances in the Science of Pathological Anatomy during the last few years have rendered essential a thorough modification of this work, with a view of making it a correct exponent of the present state of the subject. The very careful manner in which this task has been executed, and the amount of alteration which it has undergone, have enabled the author to say that "with the many changes and improvements now introduced, the work may be regarded almost as a new treatise," while the efforts of the author have been seconded as regards the mechanical execution of the volume, rendering it one of the handsomest productions of the American press.

We most sincerely congratulate the author on the successful manner in which he has accomplished his proposed object. His book is most admirably calculated to fill up a blank which has long been felt to exist in this department of medical literature, and as such must become very widely circulated amongst all classes of the profession.—*Dublin Quarterly Journ. of Med. Science*, Nov. 1867.

We have been favorably impressed with the general manner in which Dr. Gross has executed his task of affording a comprehensive digest of the present state of the literature of Pathological Anatomy, and have much pleasure in recommending his work to our readers, as we believe one well deserving of diligent perusal and careful study.—*Montreal Med. Chron.*, Sept. 1867.

BY THE SAME AUTHOR.

**A PRACTICAL TREATISE ON FOREIGN BODIES IN THE AIR-PAS-**

GROSS (SAMUEL D.), M. D.,

Professor of Surgery in the Jefferson Medical College of Philadelphia, &amp;c.

**PRACTICAL TREATISE ON THE DISEASES, INJURIES, AND MALFORMATIONS OF THE URINARY BLADDER, THE PROSTATE GLAND, AND THE URETHRA.** Second Edition, revised and much enlarged, with one hundred and eighty-four illustrations. In one large and very handsome octavo volume, of over nine hundred pages, extra cloth, \$4 75.

Philosophical in its design, methodical in its arrangement, simple and sound in its practical details, may in truth be said to leave scarcely anything to be desired on so important a subject.—*Boston Med. & Surg. Journal*.

Whoever will peruse the vast amount of valuable medical information it contains, will, we think,

agree with us, that there is no work in the English language which can make any just pretensions to be its equal.—*N. Y. Journal of Medicine*.

A volume replete with truths and principles of the utmost value in the investigation of these diseases.—*American Medical Journal*.

GRAY (HENRY), F. R. S.,

Lecturer on Anatomy at St. George's Hospital, London, &amp;c.

**ANATOMY, DESCRIPTIVE AND SURGICAL.** The Drawings by H. V. CARTER, M. D., late Demonstrator on Anatomy at St. George's Hospital; the Dissections jointly by the AUTHOR and Dr. CARTER. Second American, from the second revised and improved London edition. In one magnificent imperial octavo volume, of over 800 pages, with 388 large and elaborate engravings on wood. Price in extra cloth, \$6 50.

The speedy exhaustion of a large edition of this work is sufficient evidence that its plan and execution have been found to present superior practical advantages in facilitating the study of Anatomy. In presenting it to the profession a second time, the author has availed himself of the opportunity to supply any deficiencies which experience in its use had shown to exist, and to correct any errors of detail, to which the first edition of a scientific work on so extensive and complicated a science is liable. These improvements have resulted in some increase in the size of the volume, while twenty-six new wood-cuts have been added to the beautiful series of illustrations which form so distinctive a feature of the work. The American edition has been passed through the press under the supervision of a competent professional man, who has taken every care to render it in all respects accurate, and it is now presented, without any increase of price, as fitted to maintain and extend the popularity which it has everywhere acquired.

With little trouble, the busy practitioner whose knowledge of anatomy may have become obscured by want of practice, may now reassociate his former anatomical lore, and be ready for any emergency. It is to this class of individuals, and not to the student alone, that this work will ultimately tend to be of most incalculable advantage, and we feel satisfied that the library of the medical man will soon be considered incomplete in which a copy of this work does not exist.—*Madras Quarterly Journal of Med. Science*, July, 1861.

This edition is much improved and enlarged, and contains several new illustrations by Dr. Westmacott. The volume is a complete companion to the dissecting-room, and saves the necessity of the student possessing a variety of "Manuals."—*The London Lancet*, Feb. 9, 1861.

The work before us is one entitled to the highest praise, and we accordingly welcome it as a valuable addition to medical literature. Intermediate in fulness of detail between the treatises of Snarey and of Wilson, its characteristic merit lies in the number and excellence of the engravings it contains. Most of these are original, of much larger than ordinary size, and admirably executed. The various parts are also lettered after the plan adopted in Holden's Osteology. It would be difficult to over-estimate the advantages offered by this mode of pictorial illustration. Bones, ligaments, muscles, bloodvessels, and nerves are each in turn figured, and marked with their appropriate names; thus enabling the student to comprehend, at a glance, what would otherwise often be ignored, or at any rate, acquired only by prolonged and irksome application. In conclusion, we heartily commend the

work of Mr. Gray to the attention of the medical profession, feeling certain that it should be regarded as one of the most valuable contributions ever made to educational literature.—*N. Y. Monthly Review*, Dec. 1860.

In this view, we regard the work of Mr. Gray as far better adapted to the wants of the profession, and especially of the student, than any treatise on anatomy yet published in this country. It is destined, we believe, to supersede all others, both as a manual of dissections, and a standard of reference to the student of general or relative anatomy.—*N. Y. Journal of Medicine*, Nov. 1859.

In our judgment, the mode of illustration adopted in the present volume cannot but present many advantages to the student of anatomy. To the zealous disciple of Vesalius, earnestly desirous of real improvement, the book will certainly be of immense value; but, at the same time, we must also confess that to those simply desirous of "cranking" it will be an undoubted godsend. The peculiar value of Mr. Gray's mode of illustration is nowhere more markedly evident than in the chapter on osteology, and especially in those portions which treat of the bones of the head and of their development. The study of these parts is thus made one of comparative ease, if not of positive pleasure; and those baggage-bears of the student, the temporal and sphenoid bones, are shorn of half their terrors. It is, in our estimation, an admirable and complete text-book for the student, and a useful work of reference for the practitioner; its pictorial character forming a novel element, to which we have already sufficiently alluded.—*Am. Journ. Med. Sci.*, July, 1860.

**GIBSON'S INSTITUTES AND PRACTICE OF SURGERY.** Eighth edition, improved and altered. With thirty-four plates. In two handsome octavo volumes, containing about 1,000 pages, leather, raised band. \$6 50.

**GARDNER'S MEDICAL CHEMISTRY**, for the use of Students and the Profession. In one royal 18mo. vol., cloth, pp. 306, with wood-cuts. \$1.

**GLUGE'S ATLAS OF PATHOLOGICAL HISTOLOGY** Translated, with Notes and Additions, by JOSEPH LEBLANC, M. D. In one volume, very large imperial quarto, extra cloth, with 320 copper-plate figures, plain and colored. \$4 00.

**TECHNIQUE OF AUSCULTATION AND OTHER MODES OF PHYSICAL DIAGNOSIS, IN DISEASES OF THE LUNGS AND HEART.** Second edition. 1 vol. royal 18mo., ex. cloth, pp. 304. \$1 60.

**HOLLAND'S MEDICAL NOTES AND REFLECTIONS.** From the third London edition. In one handsome octavo volume, extra cloth. \$3.

**HORNBERG'S SPECIAL ANATOMY AND HISTOLOGY.** Eighth edition. Extensively revised and modified. In two large octavo volumes, extra cloth, of more than 1000 pages, with over 300

**KIRKES (WILLIAM SENHOUSE), M. D.,**

Demonstrator of Morbid Anatomy at St. Bartholomew's Hospital, &amp;c.

**A MANUAL OF PHYSIOLOGY.** A new American, from the third improved London edition. With two hundred illustrations. In one large and handsome royal 12mo. volume, extra cloth. pp. 586. \$2 00.

This is a new and very much improved edition of Dr. Kirkes' well-known Handbook of Physiology. It combines conciseness with completeness, and is, therefore, admirably adapted for consultation by the busy practitioner.—*Dublin Quarterly Journal*.

One of the very best handbooks of Physiology we possess—presenting just such an outline of the science as the student requires during his attendance upon a course of lectures, or for reference whilst preparing for examination.—*Am. Medical Journal*.

Its excellence is in its compactness, its clearness,

and its carefully cited authorities. It is the most convenient of text-books. These gentlemen, Messrs Kirkes and Paget, have the gift of telling us what we want to know, without thinking it necessary to tell us all they know.—*Boston Med. and Surg. Journal*.

For the student beginning this study, and the practitioner who has but leisure to refresh his memory, this book is invaluable, as it contains all that it is important to know.—*Charleston Med. Journal*.

**KNAPP'S TECHNOLOGY;** or, Chemistry applied to the Arts and to Manufactures. Edited by Dr. RONALDS, Dr. RICHARDSON, and Prof. W. R. JOHNSON. In two handsome 8vo. vols., extra cloth, with about 500 wood-engravings. \$5 00.

**LAYCOCK'S LECTURES ON THE PRINCIPLES AND METHODS OF MEDICAL OBSERVATION AND RESEARCH.** For the Use of Advanced Students and Junior Practitioners. In one royal 12mo. volume, extra cloth. Price \$1.

**LALLEMAND AND WILSON.**

**A PRACTICAL TREATISE ON THE CAUSES, SYMPTOMS, AND TREATMENT OF SPERMATORRHEA.** By M. LALLEMAND. Translated and edited by HENRY J. McDUGALL. Third American edition. To which is added——ON DISEASES OF THE VESICULÆ SEMINALES; AND THEIR ASSOCIATED ORGANS. With special reference to the Morbid Secretions of the Prostatic and Urethral Mucous Membrane. By MAZZI WILSON, M. D. In one neat octavo volume, of about 400 pp., extra cloth. \$2 00.

**LA ROCHE (R.), M. D., &c.**

**YELLOW FEVER,** considered in its Historical, Pathological, Etiological, and Therapeutical Relations. Including a Sketch of the Disease as it has occurred in Philadelphia from 1699 to 1854, with an examination of the connections between it and the fevers known under the same name in other parts of temperate as well as in tropical regions. In two large and handsome octavo volumes of nearly 1500 pages, extra cloth. \$7 00.

From Professor S. H. Dickson, Charleston, S. C., September 18, 1855.

A monument of intelligent and well applied research, almost without example. It is, indeed, in itself, a large library, and is destined to constitute the special resort as a book of reference, in the subject of which it treats, to all future time.

We have not time at present, engaged as we are, by day and by night, in the work of combating this very disease, now prevailing in our city, to do more than give this cursory notice of what we consider as undoubtedly the most able and erudite medical publication our country has yet produced. But in view of the startling fact, that this, the most malign

and unmanageable disease of modern times, has for several years been prevailing in our country to a greater extent than ever before; that it is no longer confined to either large or small cities, but penetrates country villages, plantations, and farm-houses; that it is treated with scarcely better success now than thirty or forty years ago; that there is vast mischief done by ignorant pretenders to knowledge in regard to the disease, and in view of the probability that a majority of southern physicians will be called upon to treat the disease, we trust that this able and comprehensive treatise will be very generally read in the south.—*Memphis Med. Recorder*.

**BY THE SAME AUTHOR.**

**PNEUMONIA;** its Supposed Connection, Pathological and Etiological, with Autumnal Fevers, including an Inquiry into the Existence and Morbid Agency of Malaria. In one handsome octavo volume, extra cloth, of 500 pages. \$3 00.

**LAWRENCE (W.), F. R. S., &c.**

**A TREATISE ON DISEASES OF THE EYE.** A new edition, edited with numerous additions, and 243 illustrations, by ISAAC HAYS, M. D., Surgeon to Will's Hospital, &c. In one very large and handsome octavo volume, of 950 pages, strongly bound in leather with raised bands. \$7 00.

**LUDLOW (J. L.), M. D.**

**A MANUAL OF EXAMINATIONS** upon Anatomy, Physiology, Surgery, Practice of Medicine, Obstetrics, Materia Medica, Chemistry, Pharmacy, and Therapeutics, which is added a Medical Formulary. Third edition, thoroughly revised and greatly enlarged. With 370 illustrations. In one handsome royal 12mo. volume, of 816 pages, extra cloth, \$2 50.

We know of no better companion for the student during the hours spent in the lecture room, or to be crammed into his head by the various professors whom he is compelled to listen.—*Western Letter*.



LEHMANN (G. G.)

**PHYSIOLOGICAL CHEMISTRY.** Translated from the second edition by GEORGE E. DAY, M. D., F. R. S., &c., edited by R. E. ROGERS, M. D., Professor of Chemistry in the Medical Department of the University of Pennsylvania, with illustrations selected from 'unke's Atlas of Physiological Chemistry, and an Appendix of plates. Complete in two large and handsome octavo volumes, extra cloth, containing 1200 pages, with nearly two hundred illustrations. \$6 00.

The work of Lehmann stands unrivalled as the most comprehensive book of reference and information extant on every branch of the subject on which treats.—*Edinburgh Journal of Medical Science.*

The most important contribution as yet made to Physiological Chemistry.—*Amer. Journal Med. Sciences*, Jan. 1866.

BY THE SAME AUTHOR.

**ANNUAL OF CHEMICAL PHYSIOLOGY.** Translated from the German, with Notes and Additions, by J. CHESTON MORRIS, M. D., with an Introductory Essay on Vital Force, by Professor SAMUEL JACKSON, M. D., of the University of Pennsylvania. With illustrations on wood. In one very handsome octavo volume, extra cloth, of 336 pages. \$2 25.

LYONS (ROBERT D.), K. C. C.,

Late Pathologist in-chief to the British Army in the Crimea, &c.

**TREATISE ON FEVER;** or, selections from a course of Lectures on Fever. Being part of a course of Theory and Practice of Medicine. In one neat octavo volume, of 362 pages, extra cloth; \$2 00. (*Just Issued.*)

This is an admirable work upon the most remarkable and most important class of diseases to which mankind are liable.—*Med. Journ. of N. Carolina*, May, 1861.

We have great pleasure in recommending Dr.

Lyons' work on Fever to the attention of the profession. It is a work which cannot fail to enhance the author's previous well-earned reputation, as a diligent, careful, and accurate observer.—*British Med. Journal*, March 2, 1861.

MEIGS (CHARLES D.), M. D.,

Lately Professor of Obstetrics, &c. in the Jefferson Medical College, Philadelphia.

**OBSTETRICS: THE SCIENCE AND THE ART.** Fourth edition, revised and improved. With one hundred and twenty-nine illustrations. In one beautifully printed octavo volume, of seven hundred and thirty large pages, extra cloth, \$4 00.

FROM THE AUTHOR'S PREFACE.

"In this edition I have endeavored to amend the work by changes in its form; by careful corrections of many expressions, and by a few omissions and some additions as to the text.

"The Student will find that I have recast the article on Placenta Prævia, which I was led to do out of my desire to notice certain new modes of treatment which I regarded as not only ill founded as to the philosophy of our department, but dangerous to the people.

"In changing the form of my work by dividing it into paragraphs or sections, numbered from 1 to 959, I thought to present to the reader a common-place book of the whole volume. Such a table of contents ought to prove both convenient and useful to a Student while attending public lectures."

A work which has enjoyed so extensive a reputation and has been received with such general favor, requires only the assurance that the author has labored assiduously to embody in his new edition whatever has been found necessary to render it fully on a level with the most advanced state of the subject. Both as a text-book for the student and as a reliable work of reference for the practitioner, it is therefore to be hoped that the volume will be found worthy a continuance of the confidence reposed in previous editions.

BY THE SAME AUTHOR. (*Just Issued.*)

**WOMAN: HER DISEASES AND THEIR REMEDIES.** A Series of Lectures to his Class. Fourth and Improved edition. In one large and beautifully printed octavo volume, extra cloth, of over 700 pages. \$3 50.

In other respects, in our estimation, too much cannot be said in praise of this work. It abounds with beautiful passages, and for conciseness, for originality, and for all that is commendable in a work on the diseases of females, it is not excelled, and probably not equalled in the English language. On the whole, we know of no work on the diseases of women which we can so cordially commend to the student and practitioner as the one before us.—*Ohio Med. and Surg. Journal*.

The body of the book is worthy of attentive consideration, and is evidently the production of a clever, thoughtful, and sagacious physician. Dr. Meigs's letters on the diseases of the external organs, contain many interesting and rare cases, and many instructive observations. We take our leave of Dr. Meigs, with a high opinion of his talents and originality.—*The British and Foreign Medico-Chirurgical Review*.

Every chapter is replete with practical instruction, and bears the impress of being the composition of an acute and experienced mind. There is a terse-

which cannot fail to recommend the volume to the attention of the reader.—*Rankin's Abstract*.

It contains a vast amount of practical knowledge, by one who has accurately observed and retained the experience of many years.—*Dublin Quarterly Journal*.

Full of important matter, conveyed in a ready and agreeable manner.—*St. Louis Med. and Surg. Jour.*

There is an off-hand fervor, a glow, and a warm-heartedness infecting the effort of Dr. Meigs, which is entirely captivating, and which absolutely hurries the reader through from beginning to end. Besides, the book teems with solid instruction, and it shows the very highest evidence of ability, viz., the clearness with which the information is presented. We know of no better test of one's understanding a subject than the evidence of the power of lucidly explaining it. The most elementary, as well as the obscurest subjects, under the pencil of Prof. Meigs, are isolated and made to stand out in such bold relief, as to produce distinct impressions

MEIGS (CHARLES D.) M. D.,

Lately Professor of Obstetrics, &amp;c., in Jefferson Medical College, Philadelphia.

**ON THE NATURE, SIGNS, AND TREATMENT OF CHILDREN'S**

FEVER. In a Series of Letters addressed to the Students of his Class. In one handsome octavo volume, extra cloth, of 365 pages. \$2 50.

The instructive and interesting author of this work, whose previous labors have placed his countrymen under deep and abiding obligations, again challenges their admiration in the fresh and vigorous, attractive and racy pages before us. It is a de-

lectable book. \* \* \* This treatise upon child bed fevers will have an extensive sale, being destined, as it deserves, to find a place in the library of every practitioner who accords tolag in the rest. *Nashville Journal of Medicine and Surgery.*

BY THE SAME AUTHOR; WITH COLORED PLATES.

**A TREATISE ON ACUTE AND CHRONIC DISEASES OF THE NECK OF THE UTERUS.** With numerous plates, drawn and colored from nature in the highest style of art. In one handsome octavo volume, extra cloth. \$4 50.

MACLISE (JOSEPH), SURGEON.

**SURGICAL ANATOMY.** Forming one volume, very large imperial quarto. With sixty-eight large and splendid Plates, drawn in the best style and beautifully colored. Containing one hundred and ninety Figures, many of them the size of life. Together with copious and explanatory letter-press. Strongly and handsomely bound in extra cloth, being one of the cheapest and best executed Surgical works as yet issued in this country. \$11 00.

Gentlemen preparing for service in the field or hospital will find these plates of the highest practical value, either for consultation in emergencies or to refresh their recollection of the dissecting room.

\* \* The size of this work prevents its transmission through the post-office as a whole, but those who desire to have copies forwarded by mail, can receive them in five parts, done up in stout wrappers. Price \$9 00.

One of the greatest artistic triumphs of the age in Surgical Anatomy.—*British American Medical Journal.*

No practitioner whose means will admit should fail to possess it.—*Ranking's Abstract.*

Too much cannot be said in its praise; indeed, we have not language to do it justice.—*Ohio Medical and Surgical Journal.*

The most accurately engraved and beautifully colored plates we have ever seen in an American book—one of the best and cheapest surgical works ever published.—*Buffalo Medical Journal.*

It is very rare that so elegantly printed, so well illustrated, and so useful a work is offered at so moderate a price.—*Charleston Medical Journal.*

Its plates can boast a superiority which places them almost beyond the reach of competition.—*Medical Examiner.*

Country practitioners will find these plates of immense value.—*N. Y. Medical Gazette.*

A work which has no parallel in point of accuracy and cheapness in the English language.—*N. Y. Journal of Medicine.*

We are extremely gratified to announce to the profession the completion of this truly magnificent work, which, as a whole, certainly stands unrivalled, both for accuracy of drawing, beauty of coloring, and all the requisite explanations of the subject in hand.—*The New Orleans Medical and Surgical Journal.*

This is by far the ablest work on Surgical Anatomy that has come under our observation. We know of no other work that would justify a student, in any degree, for neglect of actual dissection. In those sudden emergencies that so often arise, and which require the instantaneous command of minute anatomical knowledge, a work of this kind keeps the details of the dissecting-room perpetually fresh in the memory.—*The Western Journal of Medicine and Surgery.*

MILLER (HENRY), M. D.,

Professor of Obstetrics and Diseases of Women and Children in the University of Louisville.

**PRINCIPLES AND PRACTICE OF OBSTETRICS, &c.; including the Treat-**

ment of Chronic Inflammation of the Cervix and Body of the Uterus considered as a frequent cause of Abortion. With about one hundred illustrations on wood. In one very handsome octavo volume, of over 600 pages, extra cloth. \$3 75.

We congratulate the author that the task is done. We congratulate him that he has given to the medical public a work which will secure for him a high and permanent position among the standard authorities on the principles and practice of obstetrics. Congratulations are not less due to the medical profession of this country, on the acquisition of a treatise embodying the results of the studies, reflections, and experience of Prof. Miller.—*Buffalo Medical Journal.*

In fact, this volume must take its place among the standard systematic treatises on obstetrics; a posi-

tion to which its merits justly entitle it.—*The Cincinnati Lancet and Observer.*

A most respectable and valuable addition to our home medical literature, and one reflecting credit alike on the author and the institution to which it is attached. The student will find in this work most useful guide to his studies; the country practitioner, rusty in his reading, can obtain from its pages a fair résumé of the modern literature of the science; and we hope to see this American production generally consulted by the profession.—*N. Y. Med. Journal.*

MACKENZIE (W.), M. D.,

Surgeon Oculist in Scotland in ordinary to Her Majesty, &amp;c. &amp;c.

**A PRACTICAL TREATISE ON DISEASES AND INJURIES OF THE**

EYE. To which is prefixed an Anatomical Introduction explanatory of a Horizontal Section of the Human Eyeball, by THOMAS WHARTON JONES, F. R. S. From the Fourth Revised and Enlarged London Edition. With Notes and Additions by ADDINELL HEWSON, M. D., Surgeon to Wills Hospital, &c. &c. In one very large and handsome octavo volume, extra cloth, with plates and numerous wood-cuts. \$5 25.

The treatise of Dr. Mackenzie indisputably holds the first place, and forms, in respect of learning and

We consider it the duty of every one who has the love of his profession and the welfare of his patients

MILLER (JAMES), F. R. S. E.,  
Professor of Surgery in the University of Edinburgh, &c.

**PRINCIPLES OF SURGERY.** Fourth American, from the third and revised Edinburgh edition. In one large and very beautiful volume, extra cloth, of 700 pages, with two hundred and forty illustrations on wood. \$3 75.

BY THE SAME AUTHOR.

**THE PRACTICE OF SURGERY.** Fourth American from the last Edinburgh edition. Revised by the American editor. Illustrated by three hundred and sixty-four engravings on wood. In one large octavo volume, extra cloth, of nearly 700 pages. \$3 75.

No encomium of ours could add to the popularity Miller's Surgery. Its reputation in this country unsurpassed by that of any other work, and, when taken in connection with the author's *Principles of Surgery*, constitutes a whole, without reference to high no conscientious surgeon would be willing to neglect his art.—*Southern Med. and Surg. Journal*. It is seldom that two volumes have ever made so profound an impression in so short a time as the *Principles* and the *Practice* of Surgery by F. Miller—or so richly merited the reputation they have acquired. The author is an eminently sensible, practical, and well-informed man, who knows exactly what he is talking about and exactly how to do it.—*Kentucky Medical Recorder*.

By the almost unanimous voice of the profession,

his works, both on the principles and practice of surgery have been assigned the highest rank. If we were limited to but one work on surgery, that one should be Miller's, as we regard it as superior to all others.—*St. Louis Med. and Surg. Journal*.

The author has in this and his "*Principles*," presented to the profession one of the most complete and reliable systems of Surgery extant. His style of writing is original, impressive, and engaging, energetic, concise, and lucid. Few have the faculty of condensing so much in small space, and at the same time so persistently holding the attention. Whether as a text-book for students or a book of reference for practitioners, it cannot be too strongly recommended.—*Southern Journal of Med. and Physical Sciences*.

MORLAND (W. W.), M. D.,

Fellow of the Massachusetts Medical Society, &c.

**DISEASES OF THE URINARY ORGANS;** a Compendium of their Diagnosis, Pathology, and Treatment. With illustrations. In one large and handsome octavo volume, of about 600 pages, extra cloth. \$3 50.

Taken as a whole, we can recommend Dr. Morland's compendium as a very desirable addition to the library of every medical or surgical practitioner.—*Brit. and For. Med.-Chir. Rev.*, April, 1859.

Every medical practitioner whose attention has been to any extent attracted towards the class of diseases to which this treatise relates, must have often and sorely experienced the want of some full, yet concise recent compendium to which he could

refer. This desideratum has been supplied by Dr. Morland, and it has been ably done. He has placed before us a full, judicious, and reliable digest. Each subject is treated with sufficient minuteness, yet in a succinct, narrative style, such as to render the work one of great interest, and one which will prove in the highest degree useful to the general practitioner.—*N. Y. Journ. of Medicine*.

BY THE SAME AUTHOR.

**THE MORBID EFFECTS OF THE RETENTION IN THE BLOOD OF THE ELEMENTS OF THE URINARY SECRETION.** Being the Dissertation to which the Fiske Fund Prize was awarded, July 11, 1861. In one small octavo volume, 83 pages, extra cloth. 75 cents.

MONTGOMERY (W. F.), M. D., M. R. I. A., &c.,

Professor of Midwifery in the King and Queen's College of Physicians in Ireland, &c.

**AN EXPOSITION OF THE SIGNS AND SYMPTOMS OF PREGNANCY.**

With some other Papers on Subjects connected with Midwifery. From the second and enlarged English edition. With two exquisite colored plates, and numerous wood-cuts. In one very handsome octavo volume, extra cloth, of nearly 600 pages. \$3 75.

A book unusually rich in practical suggestions.—*Am. Journal Med. Sciences*, Jan. 1857.

These several subjects so interesting in themselves, and so important, every one of them, to the most delicate and precious of social relations, controlling often the honor and domestic peace of a family, the legitimacy of offspring, or the life of its parent, are all treated with an elegance of diction, clearness of illustrations, acuteness and justice of reasoning, unparalleled in obstetrics, and unsurpassed in medicine. The reader's interest can never flag, so

fresh, and vigorous, and classical is our author's style; and one forgets, in the renewed charm of every page, that it, and every line, and every word has been weighed and reweighed through years of preparation; that this is of all others the book of Obstetric Law, on each of its several topics; on all points connected with pregnancy, to be everywhere received as a manual of special jurisprudence, at once announcing fact, affording argument, establishing precedent, and governing alike the jurymen, advocate, and judge.—*N. A. Med.-Chir. Review*.

MOHR (FRANCIS), PH. D., AND REDWOOD (THEOPHILUS).

**PRACTICAL PHARMACY.** Comprising the Arrangements, Apparatus, and Manipulations of the Pharmaceutical Shop and Laboratory. Edited, with extensive Additions, by Prof. WILLIAM PROCTER, of the Philadelphia College of Pharmacy. In one handsomely printed octavo volume, extra cloth, of 570 pages, with over 500 engravings on wood. \$2 75

**LAYNE'S DISPENSATORY AND THERAPEUTICAL REMEMBRANCER.** With every Practical Formula contained in the three British Pharmacopoeias Edited, with the addition of the

**MALGAIGNE'S OPERATIVE SURGERY** based on Normal and Pathological Anatomy. Translated from the French by FREDERICK BRITTON, A. B., M. D. With numerous illustrations on wood.

NEILL (JOHN), M. D.,

Surgeon to the Pennsylvania Hospital, &amp;c.; and

FRANCIS GURNEY SMITH, M. D.,

Professor of Institutes of Medicine in the Pennsylvania Medical College.

**AN ANALYTICAL COMPENDIUM OF THE VARIOUS BRANCHES OF MEDICAL SCIENCE;** for the Use and Examination of Students. A new edition, revised and improved. In one very large and handsomely printed royal 12mo. volume, of about one thousand pages, with 374 wood-cuts, extra cloth, \$3 25. Strongly bound in leather, with raised bands. \$3 50.

This work is again presented as eminently worthy of the favor with which it has hitherto been received. As a book for daily reference by the student requiring a guide to his more elaborate text-books, as a manual for preceptors desiring to stimulate their students by frequent and accurate examination, or as a source from which the practitioners of older date may easily and cheaply acquire a knowledge of the changes and improvement in professional science, its reputation is permanently established.

The best work of the kind with which we are acquainted.—*Med. Examiner.*

Having made free use of this volume in our examinations of pupils, we can speak from experience in recommending it as an admirable compend for students, and as especially useful to preceptors who examine their pupils. It will save the teacher much labor by enabling him readily to recall all of the points upon which his pupils should be examined. A work of this sort should be in the hands of every one who takes pupils into his office with a view of examining them; and this is unquestionably the best of its class.—*Transatlantic Med. Journal.*

In the rapid course of lectures, where work for

the students is heavy, and review necessary for an examination, a compend is not only valuable, but it is almost a *sine qua non*. The one before us, in most of the divisions, the most unexceptionable of all books of the kind that we know of. The newest and soundest doctrines and the latest improvements and discoveries are explicitly, though concisely, laid before the student. There is a class to whom we very sincerely commend this cheap but as worth its weight in silver—that class is the graduate in medicine of more than ten years' standing, who have not studied medicine since. They will perhaps find out from it that the science is not exactly now what it was when they left it off.—*The Stethoscope.*

NELIGAN (J. MOORE), M. D., M. R. I. A., &amp;c.

**ATLAS OF CUTANEOUS DISEASES.** In one beautiful quarto volume, extra cloth, with splendid colored plates, presenting nearly one hundred elaborate representations of disease. \$4 75.

This beautiful volume is intended as a complete and accurate representation of all the varieties of Diseases of the Skin. While it can be consulted in conjunction with any work on Practice, it has especial reference to the author's "Treatise on Diseases of the Skin," so favorably received by the profession some years since. The publishers feel justified in saying that few more beautifully executed plates have ever been presented to the profession of this country.

Neligan's Atlas of Cutaneous Diseases supplies a long existing desideratum much felt by the largest class of our profession. It presents, in quarto size, 16 plates, each containing from 3 to 6 figures, and forming in all a total of 90 distinct representations of the different species of skin affections, grouped together in genera or families. The illustrations have been taken from nature, and have been copied with such fidelity that they present a striking picture of life; in which the reduced scale aptly serves to

give, at a coup d'œil, the remarkable peculiarities of each individual variety. And while thus the disease is rendered more definable, there is yet no loss of proportion incurred by the necessary concentration. Each figure is highly colored, and so truthfully has the artist been that the most fastidious observer could not justly take exception to the correctness of the execution of the pictures under his scrutiny.—*Montreal Med. Chronicle.*

BY THE SAME AUTHOR.

**A PRACTICAL TREATISE ON DISEASES OF THE SKIN.** Fourth American edition. In one neat royal 12mo. volume, extra cloth, of 334 pages. \$1 25.

**OWEN ON THE DIFFERENT FORMS OF THE SKELETON, AND OF THE TEETH.**

One vol. royal 12mo., extra cloth with numerous illustrations. \$1 25

PIRRIE (WILLIAM), F. R. S. E.,

Professor of Surgery in the University of Aberdeen.

**THE PRINCIPLES AND PRACTICE OF SURGERY.** Edited by JOHN NEILL, M. D., Professor of Surgery in the Penna. Medical College, Surgeon to the Pennsylvania Hospital, &c. In one very handsome 8vo. volume, extra cloth, of 780 pages, with 316 illustrations. \$3 75.

We know of no other surgical work of a reasonable size, wherein there is so much theory and practice, or where subjects are more soundly or clearly taught.—*The Stethoscope.*

Prof. Pirrie, in the work before us, has elaborately

discussed the principles of surgery, and safe and effectual practice predicated upon them. Perhaps no work upon this subject heretofore issued is so full upon the science of the art of surgery.—*Nashville Journal of Medicine and Surgery.*

PARKER (LANGSTON),

Surgeon to the Queen's Hospital, Birmingham.

**THE MODERN TREATMENT OF SYPHILITIC DISEASES, BOTH PRIMARY AND SECONDARY;** comprising the Treatment of Constitutional and Confirmed Syphilis, by a safe and successful method. With numerous Cases, Formulae, and Clinical Observations. From the Third and entirely rewritten London edition. In one neat octavo volume.

**PARRISH (EDWARD),**

Lecturer on Practical Pharmacy and Materia Medica in the Pennsylvania Academy of Medicine, &c.

**TREATISE ON PHARMACY.** Designed as a Text-book for the Student, and as a Guide for the Physician and Pharmaceutist. With many Formulas and Prescriptions. Third edition, greatly improved. In one handsome octavo volume, of 850 pages, with several hundred Illustrations, extra cloth. \$5 00. (*Just Ready.*)

Though for some time out of print, the appearance of a new edition of this work has been desired for the purpose of embodying in it the results of the new U. S. Pharmacopoeia. The publication of this latter has enabled the author to complete his revision in the most thorough manner. Those who have been waiting for the work may therefore rely on obtaining a volume completely on a level with the most advanced condition of pharmaceutical science.

The favor with which the work has thus far been received shows that the author was not mistaken in his estimate of the want of a treatise which should serve as a practical text-book for all engaged in preparing and dispensing medicines. Such a guide was indispensable not only to the educated pharmacist, but also to that large class of practitioners throughout the country who are obliged to compound their own prescriptions, and who during their collegiate course have no opportunity of obtaining a practical familiarity with the necessary processes and manipulations. The rapid exhaustion of two large editions is evidence that the author has succeeded in thoroughly carrying out his object. Since the appearance of the last edition, much has been done to perfect the science; the new Pharmacopoeia has introduced many changes to which the profession must conform; and the author has labored assiduously to embody in his work all that physicians and pharmacutists can ask for in such a volume. The new matter alone will thus be found worth more than the very moderate cost of the work to those who have been using the previous editions.

All that we can say of it is that to the practicing physician, and especially the country physician, who is generally his own apothecary, there is hardly any book that might not better be dispensed with. It is at the same time a dispensary and a pharmacy.—*Louisville Review.*

A careful examination of this work enables us to speak of it in the highest terms, as being the best treatise on practical pharmacy with which we are acquainted, and an invaluable *ex-ade-mecum*, not only to the apothecary and to those practitioners who are accustomed to prepare their own medicines, but to every medical man and medical student.—*Boston Med. and Surg. Journal.*

This is altogether one of the most useful books we have seen. It is just what we have long felt to be needed by apothecaries, students, and practitioners of medicine, most of whom in this country have put up their own prescriptions. It bears, upon every page, the impress of practical knowledge, conveyed in a plain common sense manner, and adapted to the comprehension of all who may read it.—*Southern Med. and Surg. Journal.*

That Edward Parrish, in writing a book upon practical Pharmacy some few years ago—one eminently original and unique—did the medical and pharmaceutical professions a great and valuable service, no one, we think, who has had access to its pages will deny; doubly welcome, then, is this new

edition, containing the added results of his recent and rich experience as an observer, teacher, and practical operator in the pharmaceutical laboratory. The excellent plan of the first is more thoroughly, —*Pennsular Med. Journal, Jan. 1860.*

Of course, all apothecaries who have not already a copy of the first edition will procure one of this; it is, therefore, to physicians residing in the country and in small towns, who cannot avail themselves of the skill of an educated pharmacist, that we would especially commend this work. In it they will find all that they desire to know, and should know, but very little of which they do really know in reference to this important collateral branch of their profession; for it is a well established fact, that, in the education of physicians, while the science of medicine is generally well taught, very little attention is paid to the art of preparing them for use, and we know not how this defect can be so well remedied as by procuring and consulting Dr. Parrish's excellent work.—*St. Louis Med. Journal, Jan. 1860.*

We know of no work on the subject which would be more indispensable to the physician or student desiring information on the subject of which it treats. With Griffith's "Medical Formulary" and this, the practicing physician would be supplied with nearly or quite all the most useful information on the subject.—*Charleston Med. Jour. and Review, Jan. 1860.*

**PEASLEE (E. R.), M. D.,**

Professor of Physiology and General Pathology in the New York Medical College.

**HUMAN HISTOLOGY**, in its relations to Anatomy, Physiology, and Pathology; for the use of Medical Students. With four hundred and thirty-four illustrations. In one handsome octavo volume, extra cloth, of over 800 pages. \$3 75.

It embraces a library upon the topics discussed within itself, and is just what the teacher and learner need. We have not only the whole subject of Histology, interesting in itself, ably and fully discussed, at what is of infinitely greater interest to the student, because of greater practical value, are its relations to Anatomy, Physiology, and Pathology, which are here fully and satisfactorily set forth.—*Kashville Journ. of Med. and Surgery.*

We would recommend it as containing a summary of all that is known of the important subjects which it treats; of all that is in the great works of Simon and Lehmann, and the organic chemists in general. Master this one volume, and you know all that is known of the great fundamental principles of medicine, and we have no hesitation in saying that it is an honor to the American medical profession.—*St. Louis Med. and Surg. Journal.*

**ROKITANSKY (CARL), M. D.,**

Curator of the Imperial Pathological Museum, and Professor at the University of Vienna, &c.

**MANUAL OF PATHOLOGICAL ANATOMY.** Four volumes, octavo, bound in two, extra cloth, of about 1200 pages. Translated by W. E. SWAIN, EDWARD SIEVEKING, C. H. MOORE, and G. E. DAY. \$5 50.

The profession is too well acquainted with the reputation of Rokitansky's work to need our assurance that this is one of the most profound, thorough, and valuable books ever issued from the medical press. It is *set generic*, and has no standard of comparison. It is only necessary to announce that it is issued in a form as cheap as is compatible with its size and preservation, and its sale follows as a matter of course. No library can be called com-

plete without these volumes, would be feeble and hopeless. The effort of the distinguished author to concentrate in a small space his great fund of knowledge, has so charged his text with valuable truths, that any attempt of a reviewer to epitomize is at once paralyzed, and must end in a failure.—*Western Lancet.*

As this is the highest source of knowledge upon the important subject of which it treats, no real student can afford to be without it. The American

**RIGBY (EDWARD), M. D.,**  
Senior Physician to the General Lying-in Hospital, &c.

**A SYSTEM OF MIDWIFERY.** With Notes and Additional Illustrations.  
Second American Edition. One volume octavo, extra cloth, 422 pages. \$2 50.

BY THE SAME AUTHOR.

**ON THE CONSTITUTIONAL TREATMENT OF FEMALE DISEASES.**  
In one neat royal 12mo. volume, extra cloth, of about 250 pages. \$1 00.

**RAMSBOTHAM (FRANCIS H.), M. D.**

**THE PRINCIPLES AND PRACTICE OF OBSTETRIC MEDICINE AND SURGERY,** in reference to the Process of Parturition. A new and enlarged edition, thoroughly revised by the Author. With Additions by W. V. KEATING, M. D., Professor of Obstetrics, &c., at the Jefferson Medical College, Philadelphia. In one large and handsome imperial octavo volume, of 650 pages, strongly bound in leather, with raised bands; with sixty-four beautiful Plates, and numerous Wood-cuts in the text, containing in all nearly 200 large and beautiful figures. \$6 00.

*From Prof. Hodge, of the University of Pa.*

To the American public, it is most valuable, from its intrinsic undoubted excellence, and as being the best authorized exponent of British Midwifery. Its circulation will, I trust, be extensive throughout our country.

It is unnecessary to say anything in regard to the utility of this work. It is already appreciated in our country for the value of the matter, the clearness of its style, and the fulness of its illustrations. To the physician's library it is indispensable, while to the student as a text-book, from which to extract the material for laying the foundation of an education on obstetrical science, it has no superior.—*Ohio Med. and Surg. Journal.*

The publishers have secured its success by the

truly elegant style in which they have brought it out, excelling themselves in its production, especially in its plates. It is dedicated to Prof. Hodge, and has the emphatic endorsement of Prof. Hodge as the best exponent of British Midwifery. We know of no text-book which deserves in all respects to be more highly recommended to students, and we could wish to see it in the hands of every practitioner, for they will find it invaluable for reference.—*Med. Gazette.*

**RICORD (P.), M. D.**

**A TREATISE ON THE VENEREAL DISEASE.** By JOHN HUNTER, F.R.S. With copious Additions, by PH. RICORD, M. D. Translated and Edited, with Notes, by FREDERICK J. BUMSTEAD, M. D., Lecturer on Venereal at the College of Physicians and Surgeons, New York. Second edition, revised, containing a *résumé* of RICORD'S RECENT LECTURES ON CHANCER. In one handsome octavo volume, extra cloth, of 550 pages, with eight plates. \$3 25.

Every one will recognize the attractiveness and value which this work derives from thus presenting the opinions of these two masters side by side. But it must be admitted, what has made the fortune of the book, is the fact that it contains the "most complete embodiment of the veritable doctrines of the Hôpital du Midi," which has ever been made pub-

lic. In conclusion we can say that this is indeed testably the best treatise on syphilis with which we are acquainted, and, as we do not often employ the phrase, we may be excused for expressing the hope that it may find a place in the library of every physician.—*Virginia Med. and Surg. Journal.*

BY THE SAME AUTHOR.

**RICORD'S LETTERS ON SYPHILIS.** Translated by W. P. LATTIMORE, M. D.  
In one neat octavo volume, of 270 pages, extra cloth. \$2 00.

**BOYLE'S MATERIA MEDICA AND THERAPEUTICS;** including the Preparations of the Pharmacopœias of London, Edinburgh, Dublin, and of the United States. With many new medicines. Edited by JOSEPH CARSON, M. D. With ninety-eight illustrations. In one large octavo volume, extra cloth, of about 700 pages. \$3 00.

**SMITH (HENRY H.), M. D., AND HORNER (WILLIAM E.), M. D.**  
**AN ANATOMICAL ATLAS,** illustrative of the Structure of the Human Body.  
In one volume, large imperial octavo, extra cloth, with about six hundred and fifty beautiful figures. \$3 50.

The plan of this Atlas, which renders it so peculiarly convenient for the student, and its superb artistic execution, have been already pointed out. We must congratulate the student upon the completion of this Atlas, as it is the most convenient work

of the kind that has yet appeared; and we must add the very beautiful manner in which it is "got up" is so creditable to the country as to be flattering to our national pride.—*American Medical Journal.*

**SHARPEY (WILLIAM), M. D., JONES QUAIN, M. D., AND RICHARD QUAIN, F. R. S., &c.**

**HUMAN ANATOMY.** Revised, with Notes and Additions, by JOSEPH LEMM, M. D., Professor of Anatomy in the University of Pennsylvania. Complete in two large octavo volumes, extra cloth, of about thirteen hundred pages. With over 500 illustrations. \$6 00.

**BOLLY ON THE HUMAN BRAIN;** its Structure, Physiology, and Diseases. From the Second and much enlarged London edition. In one octavo volume, extra cloth, of 500 pages, with 130 woodcuts. \$2 00.

handsome octavo volume, extra cloth, of over 600 pages, with about one hundred woodcuts. \$2 50.  
**SIMON'S GENERAL PATHOLOGY,** as connected to the Establishment of Rational Principles.

## STILLE (ALFRED), M. D.

**THERAPEUTICS AND MATERIA MEDICA; a Systematic Treatise on the Action and Uses of Medicinal Agents, including their Description and History.** In two large and handsome octavo volumes, of 1789 pages, leather. \$9 00.

This work is designed especially for the student and practitioner of medicine, and treats the various articles of the *Materia Medica* from the point of view of the bedside, and not of the shop or of the lecture-room. While thus endeavoring to give all practical information likely to be useful with respect to the employment of special remedies in special affections, and the results to be anticipated from their administration, a copious *Index of Diseases and their Remedies* renders the work eminently fitted for reference by showing at a glance the different means which have been employed, and enabling the practitioner to extend his resources in difficult cases with all that the experience of the profession has suggested.

Rarely, indeed, have we had submitted to us a work on medicine so ponderous in its dimensions as that now before us, and yet so fascinating in its contents. It is, therefore, with a peculiar gratification that we recognize in Dr. Stille the possession of many of those more distinguished qualifications which entitle him to approbation, and which satisfy him in coming before his medical brethren as an instructor. A comprehensive knowledge, tested by a sound and penetrating judgment, joined to a love of progress—which a discriminating spirit of inquiry has tempered so as to accept nothing new because it is new, and abandon nothing old because it is old, but which estimates either according to its relations to a just logic and experience—manifests itself everywhere, and gives to the guidance of the author all the assurance of safety which the difficulties of his subject can allow. In conclusion, we earnestly advise our readers to ascertain for themselves, by a study of Dr. Stille's volumes, the great value and interest of the stores of knowledge they present. We have pleasure in referring rather to the ample treasury of undoubted truths, the real and assured conquest of medicine, accumulated by Dr. Stille in his pages; and commend the sum of his labors to the attention of our readers, as alike honorable to our science, and creditable to the zeal, the ardor, and the judgment of him who has garnered its whole so carefully.—*Edinburgh Med. Journal*.

We know that the task would be conscientiously performed, and that few, if any, among the distinguished medical teachers in this country are better qualified than he to prepare a systematic treatise in therapeutics in accordance with the present requirements of medical science. Our preliminary examination of the work has satisfied us that we were not mistaken in our anticipations.—*New Orleans Medical News*, March, 1860.

The most recent authority is the one last mentioned, Stille. His great work on "*Materia Medica and Therapeutics*," published last year, in two octavo volumes, of some sixteen hundred pages, while it embodies the results of the labor of others up to the time of publication, is enriched with a great amount of original observation and research. We would draw attention, by the way, to the very convenient mode in which the *Index* is arranged in this work. There is first an "*Index of Remedies*;" next an "*Index of Diseases and their Remedies*." Such an arrangement of the indices, in our opinion, greatly enhances the practical value of books of this kind. In tedious, obstinate cases of disease, where we have to try one remedy after another until our stock is pretty nearly exhausted, and we are almost driven to our wit's end, such an index as the second of the two just mentioned, is precisely what we want.—*London Med. Times and Gazette*, April, 1861.

We think this work will do much to obviate the reluctance to a thorough investigation of this branch of scientific study, for in the wide range of medical literature treasured in the English tongue, we shall hardly find a work written in a style more clear and simple, conveying forcibly the facts taught, and yet free from turgidity and redundancy. There is a fascination in its pages that will insure to it a wide popularity and attentive perusal, and a degree of usefulness not often attained through the influence of a single work. The author has much enhanced the practical utility of his book by passing briefly over the physical, botanical, and commercial history of medicines, and directing attention chiefly to their physiological action, and their application for the amelioration or cure of disease. He ignores hypothesis and theory which are so alluring to many medical writers, and so liable to lead them astray, and confines himself to such facts as have been tried in the crucible of experience.—*Chicago Medical Journal*.

## SIMPSON (J. Y.), M. D.,

Professor of Midwifery, &c., in the University of Edinburgh, &c.

**CLINICAL LECTURES ON THE DISEASES OF WOMEN.** With numerous illustrations. In one handsome octavo volume, of over 500 pages, extra cloth, \$3 00. (*Now Ready*, 1863.)

This valuable work having passed through the columns of "*THE MEDICAL NEWS AND LIBRARY*" in 1860, 1861, and 1862, is now completed, and may be had separate in one handsome volume. The principal topics embraced in the Lectures are Vesico-Vaginal Fistula, Cancer of the Uterus, Treatment of Carcinoma by Caustics, Dysmenorrhœa, Amenorrhœa, Closures, Contractions, &c., of the Vagina, Vulvitis, Causes of Death after Surgical Operations, Surgical Fever, Phlegmasia dolens, Coccydynia, Pelvic Cellulitis, Pelvic Hæmatoma, Spurious Pregnancy, Ovarian Dropsy, Variotomy, Cranioclasia, Diseases of the Fallopian Tubes, Puerperal Mania, Sub-Involution and super-Involution of the Uterus, &c. &c.

As a series of monographs on these important topics—many of which receive little attention in the ordinary text-books—elucidated with the extensive experience and readiness of resource for which Professor Simpson is so distinguished, there are few practitioners who will not find in its pages matter of the utmost importance in the treatment of obscure and difficult cases.

## SALTER (H. H.), M. D.

**ASTHMA; its Pathology, Causes, Consequences, and Treatment.** In one vol. 8vo., extra cloth. (*Just Ready*.) \$1 75.

The portion of Dr. Salter's work which is devoted to treatment, is of great practical interest and value. He treats successively of the influence of the different drugs which have been found useful in relieving an asthmatic paroxysm, so far as he has had an opportunity of testing their merits, and it would be necessary to follow him step by step in his remarks, not only on the medicinal, but also on the dietetic and hygienic treatment of the disease, in order to

convey a just notion of the practical value of this part of his work. This our space forbids, and this we shall little regret, if, by our silence, we should induce our readers to possess themselves of the book itself; a book which, without doubt, deserves to be ranked among the most valuable of recent contributions to the medical literature of this country.—*Ranking's Abstract*, Jan., 1861.

maintains that it acts specifically as an arterial sedative, without depressing the vital powers. This statement I must distinctly contradict; and on the other hand maintain, that it is by depressing the vital powers, and that in the most marked and painful manner, that influence on the circulation is obtained. That a drug so potent in inflicting pain, and so inert till extreme nausea is induced, should ever find a place in British medicine as an arterial sedative, is exceedingly improbable. The drug may have virtues we know not of; but this, after many careful experiments, we do know, it has no arterial sedative quality. And while we have such a sedative as aconite to rely on, it will be most strange if, even for a time, practitioners should be so unwise as to neglect it on the bare assertion that there is a better."—*Ed. Med. Journ.*, Jan. 1864.

6. *Tinctura Boleti Laricis Canadensis*.—This is a new remedy highly recommended by Dr. Grant as a remedy for rheumatism. Dr. JAMES WATSON states (*Ed. Med. Journ.*, January, 1864), that he has used it in one case of rheumatic fever, without any effect.

7. *Sarracenia Purpurea*.—Dr. JAMES WATSON has experimented in eight cases of smallpox, in the Royal Infirmary, with this newly vaunted Canadian remedy for smallpox, and found it absolutely inert.—*Ed. Med. Journ.*, Jan. 1864.

8. *Turpentine as a Styptic*.—Dr. WILKS believes that turpentine does not hold the place among styptics which its merits deserve. He has long been in the habit of giving it, and often found it arrest hæmoptysis when other ordinary remedies had failed: he has also seen it very beneficial in one or two cases of purpura hemorrhagica.

9. *Physiological Properties of Nitrite of Amyle*.—Dr. B. W. RICHARDSON read a paper on this subject before Sub-section D, of the British Association. He first described the mode of manufacture and the chemical properties of the nitrite, and then passed on to the physiological action. The first remarkable fact was that the nitrite when inhaled produced an immediate action on the heart, increasing the action of the organ more powerfully than any other known agent. As the action of the heart rises, the surface of the skin becomes red, and the face assumes a bright crimson colour. A little of the nitrite was here placed on a piece of bibulous paper, and passed round to show the effect on the face, and the effect was most remarkable, causing the faces of the persons who smelt the vapour to become instantaneously flushed. Carried to an excessive degree, the nitrite excites the breathing, and produces a breathlessness like that caused by sharp running or rowing. On animals, when the agent is given in large quantities, death is produced. The author at first thought that the nitrite, like chloroform, would cause anæsthesia; but experiments had shown that this view was not borne out. Animals would, it is true, lose consciousness; but when such a stage was reached, great dangers resulted, owing to the slowness by which the poison was removed from the body after its absorption. On the blood the nitrite produces darkness of colour, but it does not materially interfere with coagulation in the body. In the lungs it excites congestion, and in the brain slight congestion. It causes no severe spasm and no sickness. After entering into certain other details, Dr. Richardson proceeded to say that the most remarkable effect produced by the nitrite was that in the lower animals—frogs, for instance—it led to suspended animation, which could be maintained for so long as nine days with perfect after-recovery. This fact was of curious historical interest. The ancients, especially Theophrastus (Paracelsus), had stated that there was a poison which, when taken one day would not take effect until some future day. This statement, long considered as a myth, had within the present year been shown to be true by Dr. Letheby, who had discovered a poison which really produced this phenomenon. In like manner the ancients had an idea that there were medicines which would for a time suspend life. The proceeding of Friar Lawrence in giving the distilled liquor to Juliet, was based on this old fiction, or shall we not say fact? The next point discussed



**TODD (ROBERT BENTLEY), M. D., F. R. S.,**

Professor of Physiology in King's College, London; and

**WILLIAM BOWMAN, F. R. S.,**

Demonstrator of Anatomy in King's College, London.

**THE PHYSIOLOGICAL ANATOMY AND PHYSIOLOGY OF MAN.** With about three hundred large and beautiful illustrations on wood. Complete in one large octavo volume, of 860 pages, extra cloth. Price \$4 50.

It is more concise than Carpenter's Principles, and more modern than the accessible edition of Müller's Elements; its details are brief, but sufficient; its descriptions vivid; its illustrations exact and copious; and its language terse and perspicuous.—*Charleston Med. Journal.*

A magnificent contribution to British medicine, and the American physician who shall fail to peruse it, will have failed to read one of the most instructive books of the nineteenth century.—*N. O. Med. and Surg. Journal.*

**TODD (R. B.) M. D., F. R. S., &c.**

**CLINICAL LECTURES ON CERTAIN DISEASES OF THE URINARY ORGANS AND ON DROPSIES.** In one octavo volume, 284 pages, extra cloth. \$1 50.

BY THE SAME AUTHOR.

**CLINICAL LECTURES ON CERTAIN ACUTE DISEASES.** In one neat octavo volume, of 320 pages, extra cloth. \$1 75.

**TOYNBEE (JOSEPH), F. R. S.,**

Aural Surgeon to, and Lecturer on Surgery at, St. Mary's Hospital.

**A PRACTICAL TREATISE ON DISEASES OF THE EAR;** their Diagnosis, Pathology, and Treatment. Illustrated with one hundred engravings on wood. In one very handsome octavo volume, extra cloth, \$3 00.

The work is a model of its kind, and every page and paragraph of it are worthy of the most thorough study. Considered all in all—as an original work, well written, philosophically elaborated, and happily illustrated with cases and drawings—it is by far the ablest monograph that has ever appeared on the anatomy and diseases of the ear, and one of the most valuable contributions to the art and science of surgery in the nineteenth century.—*N. Amer. Medical-Chirurg. Review*, Sept. 1860.

We are speaking within the limits of modest acknowledgment, and with a sincere and unbiassed judgment, when we affirm that as a treatise on Aural

Surgery, it is without a rival in our language or any other.—*Charleston Med. Journ. and Rev.*, Sept. 1860.

The work of Mr. Toynbee is undoubtedly, upon the whole, the most valuable production of the kind in any language. The author has long been known by his numerous monographs upon subjects connected with diseases of the ear, and is now regarded as the highest authority on most points in his department of science. Mr. Toynbee's work, as we have already said, is undoubtedly the most reliable guide for the study of the diseases of the ear in any language, and should be in the library of every physician.—*Chicago Med. Journal*, July, 1860.

**WILLIAMS (C. J. B.), M. D., F. R. S.,**

Professor of Clinical Medicine in University College, London, &c.

**PRINCIPLES OF MEDICINE.** An Elementary View of the Causes, Nature, Treatment, Diagnosis, and Prognosis of Disease; with brief remarks on Hygienics, or the preservation of health. A new American, from the third and revised London edition. In one octavo volume, extra cloth, of about 500 pages. \$2 50.

**WHAT TO OBSERVE**

**AT THE BEDSIDE AND AFTER DEATH, IN MEDICAL CASES.**

Published under the authority of the London Society for Medical Observation. A new American, from the second and revised London edition. In one very handsome volume, royal 12mo., extra cloth. \$1 00.

To the observer who prefers accuracy to blunders and precision to carelessness, this little book is invaluable.—*N. H. Journal of Medicine.*

One of the finest aids to a young practitioner we have ever seen.—*Pennsylvan. Journal of Medicine.*

**WALSHE (W. H.), M. D.,**

Professor of the Principles and Practice of Medicine in University College, London, &c.

**A PRACTICAL TREATISE ON DISEASES OF THE LUNGS;** including the Principles of Physical Diagnosis. Third American, from the third revised and much enlarged London edition. In one vol. octavo, of 468 pages, extra cloth. \$2 25.

The present edition has been carefully revised and much enlarged, and may be said in the main to be rewritten. Descriptions of several diseases, previously omitted, are now introduced; an effort has been made to bring the description of anatomical characters to the level of the wants of the practical physician; and the diagnosis and prognosis of each complaint are more completely considered. The sections on TREATMENT and the Appendix have, especially, been largely extended.—*Author's Preface.*

BY THE SAME AUTHOR.

**A PRACTICAL TREATISE ON THE DISEASES OF THE HEART AND GREAT VESSELS,** including the Principles of Physical Diagnosis. Third American, from the third revised and much enlarged London edition. In one handsome octavo volume of 420 pages, extra cloth. \$2 25.

The present edition has been carefully revised; much new matter has been added, and the entire work in a measure remodelled. Numerous facts and discussions, more or less completely novel, will be found in the description of the principles of physical diagnosis; but the chief additions have been made in the practical portions of the book. Several affections, of which little or no account

**New and much enlarged edition.**

**WATSON (THOMAS), M. D., &c.,**  
Late Physician to the Middlesex Hospital, &c.

## LECTURES ON THE PRINCIPLES AND PRACTICE OF PHYSIC.

Delivered at King's College, London. A new American, from the last revised and enlarged English edition, with Additions, by D. FRANCIS CONNIE, M. D., author of "A Practical Treatise on the Diseases of Children," &c. With one hundred and eighty-five illustrations on wood. In one very large and handsome volume, imperial octavo, of over 1200 closely printed pages in small type; extra cloth, \$4 75; strongly bound in leather, with raised bands, \$5 50.

That the high reputation of this work might be fully maintained, the author has subjected it to a thorough revision; every portion has been examined with the aid of the most recent researches in pathology, and the results of modern investigations in both theoretical and practical subjects have been carefully weighed and embodied throughout its pages. The watchful scrutiny of the editor has likewise introduced whatever possesses immediate importance to the American physician in relation to diseases incident to our climate which are little known in England, as well as those points in which experience here has led to different modes of practice; and he has also added largely to the series of illustrations, believing that in this manner valuable assistance may be conveyed to the student in elucidating the text. The work will, therefore, be found thoroughly on a level with the most advanced state of medical science on both sides of the Atlantic.

The additions which the work has received are shown by the fact that notwithstanding an enlargement in the size of the page, more than two hundred additional pages have been necessary to accommodate the two large volumes of the London edition (which sells at ten dollars), within the compass of a single volume, and in its present form it contains the matter of at least three ordinary octavos. Believing it to be a work which should lie on the table of every physician, and be in the hands of every student, the publishers have put it at a price within the reach of all, making it one of the cheapest books as yet presented to the American profession, while at the same time the beauty of its mechanical execution renders it an exceedingly attractive volume.

The fourth edition now appears, so carefully revised, as to add considerably to the value of a book already acknowledged, wherever the English language is read, to be beyond all comparison the best systematic work on the Principles and Practice of Physic in the whole range of medical literature. Every lecture contains proof of the extreme anxiety of the author to keep pace with the advancing knowledge of the day. One scarcely knows whether to admire most the pure, simple, forcible English—the vast amount of useful practical information condensed into the Lectures—or the manly, kind-hearted, unassuming character of the lecturer shining through his work.—*London Med. Times.*

Thus these admirable volumes come before the profession in their fourth edition, abounding in those distinguished attributes of moderation, judgment, erudite cultivation, clearness, and eloquence, with which they were from the first invested, but yet richer than before in the results of more prolonged observation, and in the able appreciation of the latest advances in pathology and medicine by one of the most profound medical thinkers of the day.—*London Lancet.*

The lecturer's skill, his wisdom, his learning, are equalled by the ease of his graceful diction, his eloquence, and the far higher qualities of candor, of courtesy, of modesty, and of generous appreciation of merit in others.—*N. A. Med.-Chir. Review.*

Watson's unrivalled, perhaps unapproachable work on Practice—the copious additions made to which (the fourth edition) have given it a novelty and much of the interest of a new book.—*Charleston Med. Journal.*

Lecturers, practitioners, and students of medicine will equally hail the reappearance of the work of Dr. Watson in the form of a new—a fourth—edition. We merely do justice to our own feelings, and we are sure, of the whole profession, if we thank him for having, in the trouble and turmoil of a large practice, made leisure to supply the hiatus caused by the exhaustion of the third edition. For Dr. Watson has not merely caused the lectures to be reprinted, but scattered through the whole work we find additions or alterations which prove that the author has in every way sought to bring up his teaching to the level of the most recent acquisitions in science.—*Brit. and For. Medico-Chir. Review.*

**New and much enlarged edition.**

**WILSON (ERASMUS), F. R. S.**

**A SYSTEM OF HUMAN ANATOMY, General and Special.** A new and revised American, from the last and enlarged English Edition. Edited by W. H. GOBRECHT, M. D., Professor of Anatomy in the Pennsylvania Medical College, &c. Illustrated with three hundred and ninety-seven engravings on wood. In one large and exquisitely printed octavo volume, of over 600 large pages; extra cloth, \$3 50.

The publishers trust that the well earned reputation so long enjoyed by this work will be more than maintained by the present edition. Besides a very thorough revision by the author, it has been most carefully examined by the editor, and the efforts of both have been directed to introducing everything which increased experience in its use has suggested as desirable to render it a complete text-book for those seeking to obtain or to renew an acquaintance with Human Anatomy. The amount of additions which it has thus received may be estimated from the fact that the present edition contains over one-fourth more matter than the last, rendering a smaller type and an enlarged page requisite to keep the volume within a convenient size. The editor has exercised the utmost caution to obtain entire accuracy in the text, and has largely increased the number of illustrations, of which there are about one hundred and fifty more in this edition than in the last, thus bringing distinctly before the eye of the student everything of interest or importance.

It may be recommended to the student as no less distinguished by its accuracy and clearness of description than by its typographical elegance. The wood-cuts are exquisite.—*Brit. and For. Medical Review.*

An elegant edition of one of the most useful and accurate systems of anatomical science which has been issued from the press. The illustrations are really beautiful. In its style the work is extremely concise and intelligible. No one can possibly take up this volume without being struck with the great

beauty of its mechanical execution, and the clearness of the descriptions which it contains is equally evident. Let students, by all means examine the claims of this work on their notice, before they purchase a text-book of the vitally important science which this volume so fully and easily unfolds.—*Lancet.*

We regard it as the best system now extant for students.—*Western Lancet.*

It therefore receives our highest commendation.—*Southern Med. and Surg. Journal.*

WILSON (ERASMUS), F. R. S.

**ON DISEASES OF THE SKIN.** Fifth American, from the Fifth enlarged London edition. In one handsome octavo volume, of nearly 700 large pages, with illustrations on wood, extra cloth. \$3 25. (*New Ready*, May, 1863.)

This classical work, which for twenty years has occupied the position of the leading authority in the English language on its important subject, has just received a thorough revision at the hands of the author, and is now presented as embodying the results of the latest investigations and experience on all matters connected with diseases of the skin. The increase in the size of the work shows the industry of the author, and his determination that it shall maintain the position which it has acquired as thoroughly on a level with the most advanced condition of medical science.

A few notices of the last edition are appended.

The writings of Wilson, upon diseases of the skin, are by far the most scientific and practical that have ever been presented to the medical world on this subject. The presentation is a great improvement on all its predecessors. To dwell upon all the great merits and high claims of the work before us, *veriatum*, would indeed be an agreeable service; it would be a mental homage which we could freely offer, but we should thus occupy an undue amount of space in this *Journal*. We will, however, look at some of the more salient points with which it abounds, and which make it incomparably superior to all other treatises on the subject of dermatology. No mere speculative views are allowed a place in this volume, which, without a doubt, will, for a very long period, be acknowledged as the chief standard work on dermatology. The principles of an enlightened and rational therapeutics are introduced on every appropriate occasion.—*Am. Jour. Med. Sciences*.

When the first edition of this work appeared, about fourteen years ago, Mr. Erasmus Wilson had already given some years to the study of Diseases of the Skin, and he then expressed his intention of devoting his future life to the elucidation of this branch of Medical Science. In the present edition Mr. Wilson presents us with the results of his matured experience, and we have now before us not merely a reprint of his former publications, but an entirely new and rewritten volume. Thus, the whole history of the diseases affecting the skin, whether they originate in that structure or are the more manifestations of derangement of internal organs, is brought under notice, and the book includes a mass of information which is spread over a great part of the domain of Medical and Surgical Pathology. We can safely recommend it to the profession as the best work on the subject now in existence in the English language.—*London Med. Times and Gazette*.

No matter what other treatises may be in the library of the medical attendant, he needs the clear and suggestive counsels of Wilson, who is thoroughly posted up on all subjects connected with cutaneous pathology. We have, it is very true, other valuable works on the maladies that invade the skin; but, compared with the volume under consideration, they are certainly to be regarded as inferior lights in guiding the judgment of the medical man.—*Boston Med. and Surg. Journal*, Oct. 1867.

The author adopts a simple and entertaining style. He strives to clear away the complications of his subject, and has thus produced a book filled with a vast amount of information, in a form so agreeable as to make it pleasant reading, even to the uninitiated. More especially does it deserve our praise because of its beautiful and complete atlas, which the American publishers have successfully imitated from the original plates. We pronounce them by far the best imitations of nature yet published in our country. With the text-book and atlas at hand, the diagnosis is rendered easy and accurate, and the practitioner feels himself safe in his treatment. We will add that this work, although it must have been very expensive to the publishers, is not high priced. There is no reason, then, to prevent every physician from obtaining a work of such importance, and one which will save him both labor and perplexity.—*Va. Med. Journal*.

As a practical guide to the classification, diagnosis, and treatment of the diseases of the skin, the book is complete. We know nothing, considered in this aspect, better in our language; it is a safe authority on all the ordinary matters which, in this range of diseases, engage the practitioner's attention, and possesses the high quality—unknown, we believe, to every older manual, of being on a level with science's high-water mark; a sound book of practice.—*London Med. Times*.

ALSO, NOW READY,

**A SERIES OF PLATES ILLUSTRATING WILSON ON DISEASES OF THE SKIN**; consisting of twenty beautifully executed plates, of which thirteen are exquisitely colored, presenting the Normal Anatomy and Pathology of the Skin, and containing accurate representations of about one hundred varieties of disease, most of them the size of nature. Price in cloth. \$4 50.

In beauty of drawing and accuracy and finish of coloring these plates will be found equal to anything of the kind as yet issued in this country. The value of the new edition is enhanced by an additional colored plate.

The plates by which this edition is accompanied leave nothing to be desired, so far as excellence of delineation and perfect accuracy of illustration are concerned.—*Medico-Chirurgical Review*.

Of these plates it is impossible to speak too highly. The representations of the various forms of cutaneous disease are singularly accurate, and the coloring exceeds almost anything we have met with.—*British and Foreign Medical Review*.

We have already expressed our high appreciation of Mr. Wilson's treatise on Diseases of the Skin. The plates are comprised in a separate volume, which we counsel all those who possess the text to purchase. It is a beautiful specimen of color printing, and the representations of the various forms of skin disease are as faithful as is possible in plates of the size.—*Boston Med. and Surg. Journal*, April 8, 1868.

Also, the TEXT and PLATES done up in one handsome volume, extra cloth, price \$7 50.

BY THE SAME AUTHOR.

**THE DISSECTOR'S MANUAL; or, Practical and Surgical Anatomy.** Third American, from the last revised and enlarged English edition. Modified and rearranged, by WILLIAM HUNT, M. D., Demonstrator of Anatomy in the University of Pennsylvania. In one large and handsome royal 12mo. volume, extra cloth, of 582 pages, with 154 illustrations. \$2 00.

BY THE SAME AUTHOR.

**ON CONSTITUTIONAL AND HEREDITARY SYPHILIS, AND ON SYPHILITIC ERUPTIONS.** In one small octavo volume, extra cloth, beautifully printed, with four exquisite colored plates, presenting more than thirty varieties of syphilitic eruptions. \$2 25.

BY THE SAME AUTHOR.

**HEALTHY SKIN; A Popular Treatise on the Skin and Hair, their Preservation and Management.** Second American, from the fourth London edition. One neat volume, royal 8mo. extra cloth, of about 300 pages, with numerous illustrations. \$1 00: paper cover.

WINSLOW (FORBES), M. D., D. C. L., &amp;c.

**ON OBSCURE DISEASES OF THE BRAIN AND DISORDERS OF THE MIND;** their incipient Symptoms, Pathology, Diagnosis, Treatment, and Prophylaxis. In one handsome octavo volume, of nearly 600 pages, extra cloth. \$3 00.

We close this brief and necessarily very imperfect notice of Dr. Winslow's great and classical work, by expressing our conviction that it is long since so important and beautifully written a volume has issued from the British medical press.—*Dublin Med. Press*, July 25, 1860.

We honestly believe this to be the best book of the season.—*Ranking's Abstract*, July, 1860.

The latter portion of Dr. Winslow's work is exclusively devoted to the consideration of Cerebral

Pathology. It completely exhausts the subject, in the same manner as the previous seventeen chapters relating to morbid psychical phenomena left nothing unnoticed in reference to the mental symptoms preliminary of cerebral disease. It is impossible to overrate the benefits likely to result from a general perusal of Dr. Winslow's valuable and deeply interesting work.—*London Lancet*, June 23, 1860.

It contains an immense mass of information.—*Brit. and For. Med.-Chir. Review*, Oct. 1860.

WEST (CHARLES), M. D.,

Accoucheur to and Lecturer on Midwifery at St. Bartholomew's Hospital, Physician to the Hospital for Sick Children, &c.

**LECTURES ON THE DISEASES OF WOMEN.** Second American, from the second London edition. In one handsome octavo volume, extra cloth, of about 500 pages; price \$2 50.

\* \* \* Gentlemen who received the first portion, as issued in the "Medical News and Library," can now complete their copies by procuring Part II, being page 309 to end, with Index, Title matter, &c., 8vo., cloth, price \$1.

We must now conclude this hastily written sketch with the confident assurance to our readers that the work will well repay perusal. The conscientious, painstaking, practical physician is apparent on every page.—*N. Y. Journal of Medicine*.

We know of no treatise of the kind so complete and yet so compact.—*Chicago Med. Jour.*

A fairer, more honest, more earnest, and more reliable investigator of the many diseases of women and children is not to be found in any country.—*Southern Med. and Surg. Journal*.

We have to say of it, briefly and decidedly, that it is the best work on the subject in any language; and that it stamps Dr. West as the *facile princeps* of British obstetric authors.—*Edinb. Med. Journ.*

We gladly recommend his Lectures as in the highest degree instructive to all who are interested in obstetric practice.—*London Lancet*.

Happy in his simplicity of manner, and moderate in his expression of opinion, the author is a sound reasoner and a good practitioner, and his book is worthy of the handsome garb in which it has appeared.—*Virginia Med. Journal*.

We must take leave of Dr. West's very useful work, with our commendation of the clearness of its style, and the industry and sobriety of judgment of which it gives evidence.—*London Med. Times*.

Sound judgment and good sense pervade every chapter of the book. From its perusal we have derived unmixed satisfaction.—*Dublin Quart. Journ.*

BY THE SAME AUTHOR.

**LECTURES ON THE DISEASES OF INFANCY AND CHILDHOOD.**

Third American, from the fourth enlarged and improved London edition. In one handsome octavo volume, extra cloth, of about six hundred and fifty pages. \$4 75.

The three former editions of the work now before us have placed the author in the foremost rank of those physicians who have devoted special attention to the diseases of early life. We attempt no analysis of this edition, but may refer the reader to some of the chapters to which the largest additions have been made—those on Diphtheria, Disorders of the Mind, and Idiocy, for instance—as a proof that the work is really a new edition; not a mere reprint. In its present shape it will be found of the greatest possible service in the every-day practice of nine-tenths of the profession.—*Med. Times and Gazette*, London, Dec. 10, 1859.

All things considered, this book of Dr. West is by far the best treatise in our language upon such modifications of morbid action and disease as are witnessed when we have to deal with infancy and childhood. It is true that it confines itself to such disorders as come within the province of the physician, and even with respect to these it is unequal as regards minuteness of consideration, and some

diseases it omits to notice altogether. But those who know anything of the present condition of paediatrics will readily admit that it would be next to impossible to effect more, or effect it better, than the accoucheur of St. Bartholomew's has done in a single volume. The lecture (XVI.) upon Disorders of the Mind in children is an admirable specimen of the value of the later information conveyed in the Lectures of Dr. Charles West.—*London Lancet*, Oct. 22, 1859.

Since the appearance of the first edition, about eleven years ago, the experience of the author has doubled; so that, whereas the lectures at first were founded on six hundred observations, and one hundred and eighty dissections made among nearly fourteen thousand children, they now embody the results of nine hundred observations, and two hundred and eighty-eight post-mortem examinations made among nearly thirty thousand children, who, during the past twenty years, have been under his care.—*British Med. Journal*, Oct. 1, 1860.

BY THE SAME AUTHOR.

**AN ENQUIRY INTO THE PATHOLOGICAL IMPORTANCE OF ULCERATION OF THE OS UTERI.** In one neat octavo volume, extra cloth. \$1 00.

**WHITEHEAD ON THE CAUSES AND TREAT-** | Second American Edition. In one volume. 66













maintains that it acts specifically as an arterial sedative, without depressing the vital powers. This statement I must distinctly contradict; and on the other hand maintain, that it is by depressing the vital powers, and that in the most marked and painful manner, that influence on the circulation is obtained. That a drug so potent in inflicting pain, and so inert till extreme nausea is induced, should ever find a place in British medicine as an arterial sedative, is exceedingly improbable. The drug may have virtues we know not of; but this, after many careful experiments, we do know, it has no arterial sedative quality. And while we have such a sedative as aconite to rely on, it will be most strange if, even for a time, practitioners should be so unwise as to neglect it on the bare assertion that there is a better."—*Ed. Med. Journ.*, Jan. 1864.

6. *Tinctura Boleti Laricis Canadensis*.—This is a new remedy highly recommended by Dr. Grant as a remedy for rheumatism. Dr. JAMES WATSON states (*Ed. Med. Journ.*, January, 1864), that he has used it in one case of rheumatic fever, without any effect.

7. *Sarracenia Purpurea*.—Dr. JAMES WATSON has experimented in eight cases of smallpox, in the Royal Infirmary, with this newly vaunted Canadian remedy for smallpox, and found it absolutely inert.—*Ed. Med. Journ.*, Jan. 1864.

8. *Turpentine as a Styptic*.—Dr. WILKS believes that turpentine does not hold the place among styptics which its merits deserve. He has long been in the habit of giving it, and often found it arrest hæmoptysis when other ordinary remedies had failed: he has also seen it very beneficial in one or two cases of purpura hemorrhagica.

9. *Physiological Properties of Nitrite of Amyle*.—Dr. B. W. RICHARDSON read a paper on this subject before Sub-section D, of the British Association. He first described the mode of manufacture and the chemical properties of the nitrite, and then passed on to the physiological action. The first remarkable fact was that the nitrite when inhaled produced an immediate action on the heart, increasing the action of the organ more powerfully than any other known agent. As the action of the heart rises, the surface of the skin becomes red, and the face assumes a bright crimson colour. A little of the nitrite was here placed on a piece of bibulous paper, and passed round to show the effect on the face, and the effect was most remarkable, causing the faces of the persons who smelt the vapour to become instantaneously flushed. Carried to an excessive degree, the nitrite excites the breathing, and produces a breathlessness like that caused by sharp running or rowing. On animals, when the agent is given in large quantities, death is produced. The author at first thought that the nitrite, like chloroform, would cause anæsthesia; but experiments had shown that this view was not borne out. Animals would, it is true, lose consciousness; but when such a stage was reached, great dangers resulted, owing to the slowness by which the poison was removed from the body after its absorption. On the blood the nitrite produces darkness of colour, but it does not materially interfere with coagulation in the body. In the lungs it excites congestion, and in the brain slight congestion. It causes no severe spasm and no sickness. After entering into certain other details, Dr. Richardson proceeded to say that the most remarkable effect produced by the nitrite was that in the lower animals—frogs, for instance—it led to suspended animation, which could be maintained for so long as nine days with perfect after-recovery. This fact was of curious historical interest. The ancients, especially Theophrastus (Paracelsus), had stated that there was a poison which, when taken one day would not take effect until some future day. This statement, long considered as a myth, had within the present year been shown to be true by Dr. Letheby, who had discovered a poison which really produced this phenomenon. In like manner the ancients had an idea that there were medicines which would for a time suspend life. The proceeding of Friar Lawrence in giving the distilled liquor to Juliet, was based on this old fiction, or shall we not say fact? The next point discussed

by Dr. Richardson had reference to the mode of action of this poison. Were the effects produced through the blood, or by the nerves direct? The speaker said that he had been led to the conclusion, from previous experiments, that all poisons were brought into action through the blood; but this very commonly accepted theory did not explain the immediate and powerful action which follows the exhibition of the minutest dose of the nitrite of amyle. He thought, therefore, that the action was immediately on the nervous system, and that such action, transferred to the filaments of nerves surrounding the arteries, paralyzed the vaso nerves, on which the heart immediately injected the vessels causing the peculiar redness of the skin and the other phenomenon that had been narrated. Dr. Richardson, in conclusion, said that nitrite of amyle, like to chloroform twenty years ago, was only to be considered a physiological curiosity. It might by its action suggest the cause of trance, and of what was called hysterical unconsciousness, and it might explain the mode by which certain analogous substances produced their effects on the organism. It had been suggested—naturally suggested—that in fainting, as from loss of blood or from fear, the inhalation of the nitrite of amyle might be of service. He (the author) did not, however, at the present moment recommend its use in medicine, because of the intensity of its action. This last point was at the present time under his inquiry, and he would report further results at the next meeting of the Association.—*Med. Times and Gaz.*, Sept. 26, 1863.

10. *Liquor Bismuthi*.—Mr. CHAS. R. C. TICHBORNE read before the Pharmaceutical Society in December last the following account of a new preparation of bismuth, which is getting much in vogue in Great Britain, and is highly spoken of by many practitioners:—

“Under the name of *Liq. Bismuthi* there has been introduced to the notice of the faculty a preparation, which purports to possess great advantage over the ordinary basic nitrate. The desirable points in this preparation are—first, its solubility; second, its slight taste; and third, its alkalinity. It has also the peculiarity of not being precipitable by water.

I felt the desirability of such a mode of exhibiting bismuth, and therefore made an analysis of the solution for my own information; and as it possesses certain phases of interest, I now take this opportunity of placing it before the members of the Pharmaceutical Society.

A qualitative analysis elicited the following: The solution contained bismuth, citric acid, and ammonia; not a trace of nitric acid could be detected in the solution. *Liq. bismuthi* is therefore probably a solution of a basic salt, having a composition analogous to  $3\text{MOCl} + \text{MO}$ ; one of the bases,  $\text{M}()$ , being replaced by  $\text{BiO}_3$ ; it is made from the recently precipitated and well-washed oxide. From the peculiarity of having to deal with an alkaline bismuthic solution, direct precipitation with sulphide of ammonium was employed to determine the amount of bismuth present; this gave, on washing and drying, 0.327 grammes of  $\text{BiS}_3$  in the fluid half-ounce, which represents 1.114 grains of the teroxide as being present in the drachm. Now, although the circular which accompanies the *liq. bismuthi* states that  $\text{zj}$  is equivalent to a full dose (fifteen to twenty grains) of the insoluble trisnitrate, I do not think such can be the case. The idea evidently is that the metal, when in the soluble form, is much more active than the ordinary insoluble modification, and there can be no doubt that it is so to a certain extent; but I should consider three grains to the drachm as the minimum dose; even more than this quantity may be easily introduced into such a solution as the above. The following is probably the mode pursued in making this solution: 430 grains of metallic bismuth are dissolved in a sufficient quantity of nitric acid, and this solution of ternitrate of bismuth is then precipitated with ammonia, and the resulting hydrated oxide well washed; 480 grains of citric acid are then exactly neutralized with ammonia, and the moist oxide is gradually added to the boiling solution of citrate of ammonia. The oxide is slowly but perfectly taken up. Ammonia is slowly evolved during the boiling (probably from the decomposition of the citrate of ammonia *per se*), but the solution becomes slightly acid, and remains so until the completion of the process. The solution is then neutralized with ammonia, and the whole is made to measure one pint. This

solution will contain three grains of  $\text{BiO}_3$ , to the 3j. It is more elegantly made by dissolving the citrate of bismuth in citrate of ammonia.<sup>1</sup>

Tartaric acid has also a similar action upon bismuth.

There seems to be a limit to the solubility of chemically pure citrate of bismuth; but the solubility is wonderfully increased by the presence of mineral acids. This is no doubt due to the greater solubility of the salts formed by the latter acids in citrate of ammonia.

The reactions of this bismuthic solution are as follows:—

Ammonia and carbonate of ammonia give no precipitate. Potash and soda, or the carbonates of these alkalis, give precipitates insoluble in an excess of the precipitant. Nitric, sulphuric, and hydrochloric acids give precipitates soluble in an excess of the respective acids, and reprecipitable on neutralization with ammonia. These precipitates are also soluble on the further addition of ammonia. Water gives no precipitate. Sulphide of ammonium throws down the whole of the bismuth as sulphide.

As the reactions of citric and tartaric acids are at present little known, it is my intention to investigate the matter further, particularly with a view to its analytical bearing; but in the meantime I place before you the results of my investigation of the liq. bismuthi.

Mr. Schacht (of Clifton) said that although the author of the paper had not thought fit to mention his name in connection with the liquor bismuthi examined, there could be no doubt, from the quotation made from the circular, that the preparation the meeting had just heard so freely discussed was that made by himself. Assuming this to be the case, he could state that the author had well performed his task in submitting it to analysis. The preparation sold as liquor bismuthi (Schacht), consisted of bismuth oxide, citric acid, and ammonia, and the quantity of oxide of bismuth present was one grain in the drachm. This, however, had been published in the *Lancet* several months ago (?). A fact so easy of investigation he had never attempted to keep secret, but on the contrary he had told its composition to every medical man with whom he had conversed on the subject. He had adopted the name "Liquor Bismuthi (Schacht)," partly because having been fortunate several years ago in discovering this elegant method of holding bismuth in permanent solution, he was anxious to reap some measure of reward in the credit which would attach to so distinct an improvement as he believed this preparation to be; and partly also because as the article can only exist in the form of solution, it was convenient that the profession should be invited to prescribe a medicine of one definite strength. In answer to the author's suggestion that it should be made three times as strong as he (Mr. Schacht) had been accustomed to make it, he would observe that the quantity indicated as a dose—one drachm—was easy both to remember and to dispense, and he had abundance of evidence to prove that in such doses it was efficient, in many cases succeeding where full doses of from five to twenty grains of the trisnitrate had failed. He claimed the credit, such as it was, of having been the first to prepare and introduce to the profession a permanently fluid form of bismuth, and as his preparation had been a good deal employed during the last five or six years it would be a great pity to alter its strength."—*Dublin Med. Press*, Jan. 20, 1864, from *Pharm. Journ.*

## MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

11. *Trichiniasis in Germany.*—In the original department of this Number will be found an interesting account, by a correspondent, of the recently dis-

<sup>1</sup> Citrate of bismuth is a very insoluble salt, got by the double decomposition of citrate of potash or soda, and ternitrate of bismuth. The citrate, as made in this manner, is extremely soluble in ammonia or a solution of citrate of ammonia.

covered disease produced by the presence of *Trichinæ* in the human system, The *British Medical Journal* for Jan. 16, 1864, contains some additional details, which we transfer to our pages, as we are confident they will interest our readers.

"A few months ago, there was a festive celebration at Hettstädt, a small country town near the Hartz Mountains, in Germany. Upwards of one hundred persons sat down to an excellent dinner, and, having enjoyed themselves *more majorum*, separated, and went to their homes.

"Of these one hundred and three persons, mostly men in the prime of life, eighty-three are now in their graves; the majority of the twenty survivors linger with a fearful malady; and a few only walk apparently unscathed among the living, but in hourly fear of an outbreak of the disease which has carried away such numbers of their fellow-diners.

"They had all eaten of a poison at that festive board, the virulence of which far surpasses the reported effects of *aqua topkana*, or of the more tangible agents described in toxicological text-books. It was not a poison dug out of the earth, extracted from plants, or prepared in the laboratory of the chemist. It was not a poison administered by design or negligence. But it was a poison unknown to all concerned; and was eaten with the meat in which it was contained, and of which it formed a living constituent.

"When the festival at Hettstädt had been finally determined upon, and the dinner had been ordered at the hotel, the keeper of the tavern arranged his bill-of-fare. The introduction of the third course, it was settled, should consist, as usual in those parts of the country, of *Rostewurst und Gemuse*. The *Rostewurst* was, therefore, ordered at the butcher's the necessary number of days beforehand, in order to allow of its being properly smoked. The butcher, on his part, went expressly to a neighbouring proprietor, and bought one of two pigs from the steward, who had been commissioned with the transaction by his master. It appears, however, that the steward, unfortunately, sold the pig which the master had not intended to sell, as he did not deem it sufficiently fat, or well-conditioned. Thus the wrong pig was sold, carried on a barrow to the butcher, killed and worked up into sausages. The sausages were duly smoked and delivered at the hotel. There they were fried and served to the guests at the dinner-table.

"On the day after the festival, several persons who had participated in the dinner were attacked with irritation of the intestines, loss of appetite, great prostration, and fever. The number of persons attacked rapidly increased; and great alarm was excited in the first instance by the apprehension of an impending epidemic of typhus fever or continued fever, with which the symptoms observed showed great similarity. But when, in some of the cases treated by the same physician, the features of the illness began to indicate at first acute peritonitis, then pneumonia of a circumscribed character, next paralysis of the intercostal muscles and the muscles in front of the neck, the hypothesis of septic fever, though sustained in other cases, had to be abandoned with respect to these particular cases. Some unknown poison was now assumed to be at the bottom of the outbreak; and an active inquiry into all the circumstances of the dinner was instituted. Every article of food and material was subjected to a most rigid examination, without any result in the first instance. But when the symptoms in some of the cases invaded the muscles of the leg, particularly the calves of some of the sufferers, the description which Zenker had given of a case of fatal trichinous disease was remembered. The remnants of sausage, and of pork employed in its manufacture, were examined with the microscope, and found to be literally swarming with encapsuled trichinæ. From the suffering muscles of several of the victims small pieces were excised, and under the microscope found charged with embryonic trichinæ in all stages of development. It could not be doubted any longer, that as many of the one hundred and three as had partaken of *Rostewurst* had been infested with trichinous disease by eating of trichinous pork, the parasites of which had, at least in part, escaped the effects of smoking and frying.

"This awful catastrophe awakened sympathy and fear throughout the whole of Germany. Most of the leading physicians were consulted in the interest of the sufferers, and some visited the neighbourhood where most of the afflicted

patients remained. But none could bring relief or cure. With an obstinacy unsurpassed by any other infectious or parasitic disease, trichiniasis carried its victims to the grave. Many anthelmintics were arrayed to destroy, if not the worms already in the flesh, at least those yet remaining in the intestinal canal. Picric acid was employed until its use seemed as dangerous as the disease; benzole, which had promised well in experiments upon animals, was tried, but was unavailing. As case after case died off, and the dissection of each proved the parasites to have been quite unaffected by the agents employed, the conviction was impressed upon every mind that a man afflicted with flesh-worm is doomed to die the slow death of exhaustion from nervous irritation, fever, and loss of muscular power, in systems essential to existence.

"But medical science had only just unravelled a mystery; and if it could not save the victims, it was determined, at least, to turn the occasion to the next best account. The cases were, therefore, observed with care, and chronicled with skill. All the multifarious features of the parasitic disease were registered in such a manner, that there can hereafter be no difficulty in the diagnosis of this disorder. A valuable diagnostic feature was repeatedly observed—namely, the appearance of the flesh-worm under the thin mucous membrane on the lower side of the tongue. The natural history of trichina in man was found to be the same as that in animals.

"All observations led to the conviction that the trichina encapsuled in the flesh is in the condition of puberty. Brought into the stomach, the calcareous capsule is digested with the flesh, and the trichina is set free. It probably feeds upon the walls of the intestines themselves; for the irritation of the intestines begins before the bringing forth of young trichinæ has taken place. Copulation is immediately effected; and within a few hours, or a short portion of days, from sixty to eighty live embryos leave the female, and begin their own career of destruction.

"This consists, in the first instance, in an attempt to pierce the walls of the intestinal canal. Great inflammation of the entire surface ensues, ending not rarely in death of the villous or mucous membrane, or in the formation of masses of pus on its surface. Sometimes there are bloody stools. But these severe symptoms only ensue when much trichinous meat has been eaten. When less has been consumed, pain and uneasiness in the abdomen are produced, accompanied, however, in all instances, by wasting fever and prostration. The embryos actually pierce the intestines, and are found free in the effusion, sometimes serous, sometimes purulent, which is always poured out into the abdominal cavity. Thence they again proceed towards the periphery of the body, pierce the peritoneum, causing great irritation, and sometimes peritonitis, to the extent of gluing the intestines together to a coherent mass. They next proceed to the muscles nearest to the abdomen; arrived at the elementary muscular fibres, which, under the microscope, appear as long cylinders with many transverse striæ, they pierce the membranes, enter the fibres, eat and destroy their striated contents, consume a great part of the granular detritus, moving up and down in the fibres until grown to the size necessary for passing into the quiescent state. They then roll up in spiral or other irregular windings, the bags of the muscular fibres collapse, and only where the trichinæ lie a calcareous matter is deposited, perhaps by the trichinæ themselves, which hardens into perfect capsules round the parasites. A muscular fibre may harbour one or several parasites; but every fibre invaded by a single parasite loses its character entirely, and becomes a bag of detritus from one end to the other.

"If it be remembered that one ounce of meat filled with trichinæ may form the stock from which, in a few days, three millions of worms may be bred; and that these worms will destroy in the course of a few weeks not less than two millions of striated muscular fibres—an idea of the extent of destruction produced by these parasites can be formed. We are not in a position to say to what proportion of the fifty or sixty pounds of muscle required for the performances of the human body these two millions of elementary fibres actually amount. In the muscles nearest to the abdomen, the destruction is sometimes so complete, that not a fibre free from parasites can be found. This amounts to complete paralysis. But death is not always produced by the paralysis; it is mostly

the result of paralysis, peritonitis, and irritative fever combined. No case is known in which trichiniasis, after having declared itself, became arrested. All persons affected have either died, or are in such a state of prostration that their death is very probable.

"Most educated people in Germany have, in consequence of the Hettstädt tragedy, adopted the law of Moses, and avoid pork in any form. To some of the large pig-breeders in Westphalia, who keep as many as two thousand pigs, the sinking of the price of pork has been a ruinous—at the least, a serious—loss. In the dining-rooms of the hotels in the neighbourhood of Hettstädt, notices are hung up announcing that pork will not be served in any form in these establishments. To counteract this panic, the farmers' club of the Hettstädt district gave a dinner at which no other meat but pork was eaten. But it has had no appreciable effect. The raw ham and sausages of Germany are doomed to extinction. The smoked and fried sausages must necessarily be avoided.

\* \* \* \*

"In the South of Germany, some people now say that the Hungarian pigs are most frequently affected with trichinæ. This rumour, like the famous pork dinner of the farmers' club, may, however, have been set up with the intention of quieting apprehension about the native pigs. We have already mentioned the accident which befell the crew of a merchant vessel. They shipped a pig at Valparaiso, and killed it a few days before their arrival at Hamburg. Most of the sailors ate of the pork in one form or another. Several were affected with trichinæ and died. Of those whose fate could be inquired into, one only seems to have escaped the parasites. Another outbreak in Saxony has carried away twelve persons. A fourth wholesale poisoning by trichinæ is just reported from Offenbach, the Birmingham of Hesse-Darmstadt. Of upwards of twenty persons infected, three had already died when our correspondent's letter left. Numerous sporadic cases of fever, and epidemics of inscrutable peculiarity, but referred to an anomalous type of fever, are now claimed by medical authors, and with much show of reason, to have been outbreaks of trichiniasis, or flesh-worm disease. Several German physicians experimentalized with a view of finding a cure for this terrible disorder. Professor Eckhardt at Gießen, we are told, has obtained permission to try the disease and supposed remedies upon a murderer under sentence of death. We have not been told whether his reward in case of success is to be a commutation of his capital sentence; but should hope this to be the case. The experiment, even if it should not have the romantic character indicated, will probably teach some curious details of the life of these parasites. Almost everywhere, the commonest rules of cleanliness are disregarded in the rearing of pigs. Yet pigs are naturally clean animals, avoiding, like dogs and cats, all contact with ordure. Though they burrow in the earth, and in summer wallow in the mud, they abhor the heaps of excrements mixed with straw in and upon which they are frequently kept. A due regard to cleanliness will prevent trichinæ in the pig. In wild boars, of which many are eaten in the country round the Hartz Mountains, trichina has never been found. Neither has it been met with in sheep, oxen, or horses. Beef is the safest of all descriptions of meat, as no parasites have ever been discovered in it. They have also never been found in the blood, brain, or heart, of those animals in whose striated muscles they love to reside."

12. *Hæmaturia at the Cape of Good Hope due to the presence of Parasites.*—Dr. JOHN HARLEY read before the Royal Medical and Chirurgical Society (Jan. 26, 1864) a very interesting account of some cases of hæmaturia due to the presence of parasites belonging to the genus *Distomum* or *Gynæcophorus*.

In the beginning of October last, a gentleman, resident in the Cape, consulted the author about a slight hæmaturia which he had had for some years. After micturition a little blood, never exceeding a teaspoonful, or some dark "veins," appeared with the last half ounce of urine. The urine itself was never bloody. Sometimes the "veins" would block up the urethra, and cause obstruction for a few minutes. He had an occasional twinge of smart pain in the loins. These were all the symptoms that ever appeared in connection with the urinary apparatus. He said great numbers of people of both sexes were affected in pre-

exactly the same way in certain parts of the Cape. While awaiting a sample of his urine, Dr. Harley made inquiries amongst his Cape friends and acquaintances; and, as the result corroborated his patient's statements, he was now satisfied of the existence of endemic hæmaturia in Nitenhage and Port Elizabeth, and it remained for him to ascertain the cause. In the various samples of urine sent to him by his patient, he invariably detected the eggs of an entozoon; and in one specimen he had the good fortune to discover the perfect embryo after its escape from the eggshell, under the form of a minute, ciliated animalcula. From its anatomical characters and developmental changes he was led to refer the parasite to the *Trematode* class of worms, and to the family *Distomum*. Of the five species of this genus which inhabit man, it had no relation with three. *Distomum heterophyes* presented some points of resemblance, viz.: in the size and conformation of the alimentary canal, if he (Dr. Harley) might be allowed to compare it with an organ he met with in one sample of his own, and which he supposed to be the intestinal canal of the adult parasite. But the animal which it seemed to most nearly resemble, in the outward form of the eggs as well as in the symptoms of the disease it produces, was the *Distomum hæmatobium*. This parasite, according to Bilharz and Griesinger, was very common in Egypt, and inhabited all parts of the urinary apparatus. But since the parts he had described differed in several respects from the corresponding parts of the *hæmatobium*, and since, from want of recorded information respecting the corresponding parts of *D. heterophyes*, he could not compare them with these, he was obliged to comprehend them under a new species, which he would call *D. capense*. Having finished his observations of this case, he was strongly persuaded that the hæmaturia of the Cape was due to the parasite, the early stage of whose development he had been able to observe; but still, as its presence in a single case might be nothing more than a coincidence, he felt that more extended observations were needed to prove that this was the constant cause of the local disease in question. With singular good fortune he had the pleasure of an introduction to Mr. Dunsterville, Surgeon to the Port Elizabeth Infirmary, and who, having practised for twenty-seven years in the Cape of Good Hope—which was one of the two places in which he (Dr. Harley) found the hæmaturia to be endemic—was quite familiar with the disease, the cause of which, however, from want of leisure and means of observation, had never been ascertained. Mr. Dunsterville's two sons, in common with most other young men, suffered from the disease, but considered themselves to be now free from it. At the author's request, Mr. Dunsterville kindly supplied him with samples of their urine, and he (Dr. Harley) was at once enabled to demonstrate to Mr. Dunsterville the existence of the characteristic eggs of the parasite in question in the secretion from both. Having thus demonstrated the existence of the same parasite in three individuals suffering or having suffered from the hæmaturia endemic in some parts of the Cape, Dr. Harley concluded that the animal was the constant cause of the disease.

Dr. COBBOLD remarked that no person who had previously familiarized himself with the appearances presented by the eggs of the various distomes could doubt for a moment that Dr. John Harley's illustrations represented the ova of the so-called *Distoma hæmatobium*. In short, the symptoms, pathological products, eggs, and embryos described by Dr. Harley, all tended to show that this hæmaturia of the Cape was identical with the well-known Egyptian malady. Dr. Harley's discovery was, however, a most important one in relation to the geographical distribution and prevalence of entozootic diseases; for the author had now demonstrated, in a most satisfactory and able manner, that the helminthiasis in question was not confined to Egypt, as had hitherto been supposed, but was more or less prevalent in Southern Africa and in the Mauritius. Speaking zoologically, this parasite was not a true distome, as it represented the type of a distinct genus, to which Diesing, of Vienna, gave the name of *Gymnecophorus*; Weinland, of Frankfort, had called *Schistosoma*; Moquin-Tandon had denominated *Thecosoma*; and himself had previously entitled *Bilharzia*, after the name of the original discoverer, Dr. Bilharz, of Cairo. He (Dr. Cobbold) had discovered this so-called *Distoma hæmatobium* in the portal blood of an African monkey (*Cercopithecus fuliginosus*) six months before Diesing had



communicated his paper to the Vienna Academy, and, therefore, he hoped Dr. Harley (in concert with Weinland and others) would retain the generic name *Bilharzia*, which had the priority. At all events, this was not a new species of fluke, and, therefore, the name *Distoma capense* could not stand. But Dr. Harley's discovery was none the less important on this account. It was quite clear to him (Dr. Cobbold) that our fellow men at the Cape, in the Mauritius, on the banks of the Nile—and also, if you please, our friends, the monkeys—obtained this parasite by swallowing the “intermediate bearers” of the *Bilharzia*. These “bearers” or “hosts” were small mollusks or aquatic animals, inhabiting the African rivers. They contained the higher larval states of this parasite, the larvæ being introduced into the human body by drinking the African waters unfiltered.—*Med. Times and Gaz.*, Feb. 6, 1864.

13. *Extensive Development of Cysticerci in the Human Body.*—Pierre Massot, aged 77, was admitted into the Hôtel-Dieu at Lyons in November, 1862, with pulmonary catarrh and general weakness. On February 9th, 1863, he broke the neck of the left thigh-bone, and was consequently removed into the surgical wards, under M. Delore, where he gradually became weaker, and died on April 16th. M. Delore had noticed, during the man's life, a number of small tumours on the chest, along the arms, on the elbows, and in the armpits. The lower limbs were very cedematous, so that the presence of any tumours in this situation could not be ascertained. The swellings were subcutaneous, and were not adherent to the skin nor to subjacent parts. Some of these seemed to be united by fibro-cellular bands, as they were easily moved together. The skin over them was unaltered; they were of the size of haricot-beans, very hard, and presented no trace of fluctuation. It was thought that they were of fibro-plastic character.

Thirty-hours after the man's death, the tumours were examined by M.M. Delore and Bertholus, and were recognized to be due to the presence of cysticerci. Several cysticerci were found in the subcutaneous tissue of the conjunctivæ. The muscles were pale and easily torn; all those of the trunk and limbs contained numerous cysticerci; in the diaphragm there was one nearly as large as an almond. It was estimated that the subcutaneous conjunctival tissue and the subaponeurotic and intermuscular tissue contained about 2,000 of these bodies. They occupied principally the points of insertion of the muscles; their longest diameter lay parallel with the fibres, which they separated without destroying them; they were also lodged in the intermuscular spaces. No cysticerci were contained in the bones. The head of the thigh-bone was broken outside the capsule, and the great trochanter was also detached. Union had not taken place. There were no cysticerci in the eyes; nor at the base of the tongue, where they are always present in measly pigs (up to the present time, only one case of cysticerci in the human tongue has been noticed; it is related by Rudolphi). The liver, spleen, and kidneys were quite healthy; the latter presented numerous cysts on their surface. The pancreas contained one cysticercus. The mesentery was literally crammed with them. The parotid glands contained several. Three or four were found in the sides of the larynx. There were sixteen on the surface and in the tissue of the lungs. One was placed superficially on the anterior wall of the heart. The intestines were carefully washed and examined; but no tæniæ nor worms of any kind were found. In the nervous centres, 111 cysticerci were found; viz., 22 in the membranes, 84 in the cerebrum, 4 in the cerebellum, and 1 in the medulla oblongata. None were present in the spinal cord. On the surface of the brain, a rather large number of cysticerci had formed a small cavity in the substance of the convolutions; others were seen through a thin layer of cerebral substance. The ventricles, choroid plexus, and optic thalami, contained a considerable number. The brain was soft and diffuent.

An examination of the parasites showed that the vesicles varied much in size, and that they contained scolices having a double range of hooklets varying from thirty to thirty-four in number.

Very little information could be obtained as to the antecedent history of Pierre Massot. As far as could be ascertained, he was a beggar, led a wandering life, and was frequently intoxicated. His food ordinarily consisted of bread,

cheese, and pork. In the part of the country where he lived, *measly pork* is common; but no cases of *tæniæ* have been noticed there.

Cases where the muscles and organs have been generally occupied with *cysticerci* are very rare. M. Delore has met with only two such instances; one related by Werner, the other by Demarquay. In the latter case, most of the muscles contained *cysticerci*; but among the internal organs, the lungs alone. In a case of ununited fracture of the humerus, under the care of Dupuytren, where resection was performed, several *hydatids* were found in the fragments. The fracture was attributed to their presence, as the patient had broken his arm in throwing a stone with moderate force.—*British Medical Journal*, December 26, 1863, from *Gazette Méd. de Paris*, 3 Octobre, 1863.

14. *Epidemic Pleuro-Pneumonia in some Ships of the Mediterranean Fleet.*—Dr. Bryson, Inspector-General of Hospitals and Fleets, R. N., read before the Epidemiological Society an account of this epidemic.

The disease was of a low, asthenic or typhoid type, accompanied with great congestion usually of the lower lobes of the lungs, and in many of the cases in the ship chiefly affected, the *St. Jean d'Acre*, with scorbutic symptoms, although the diet of the crew was in every respect as good as in the other vessels of the squadron. In the *Cressy*, too, there was an unusual prevalence of lung disease, often of an obscure and anomalous character, which was not easy to designate. The evidences of the pulmonary tissue being congested or even consolidated in different parts of the chest, associated with pleurisy or pleurodynia, and with such a cachectic condition of the system as might probably lead on to tubercular degeneration in chronic cases, were the most conspicuous features of the malady. Effusion into the chest was discovered in a few instances. Diarrheal and dysenteric attacks were common both in the early and late stage. The following table shows how very differently different ships of the squadron were affected with diseases of the lungs in the course of the year, and also with other diseases, the extent of whose prevalence is usually regarded as a fair test of the healthiness, or otherwise, of a ship's crew. Attention should be paid to the number of the crew in each vessel, to estimate aright the marked difference in respect of the number of cases under each head in the different ships. The reader can easily calculate the ratio of attacks to the crew for himself:—

	No. of Crew.	Cases of sickness in year.	Diseases of lungs, etc.	Diseases of bowels.	Fever, continued and remittent.	Ulcers.
Marlborough	1145	937	129	64	10	75
Agamemnon	840	881	241	58	17	30
St. Jean d'Acre	815	1601	401	171	136	115
Cressy	720	1483	298	254	12	102

The deaths from disease in the *St. Jean d'Acre*, and in the *Cressy* were twice as numerous as in the *Marlborough*, notwithstanding the much smaller crews of the former vessels; and the number invalidated from the first ship was fourfold as numerous. As to the chief cause of this enormous disproportion in the sickness and mortality, &c., in two ships of the same fleet and similarly exposed, it was clearly shown that this lay in the excessive overcrowding of the men at night in the *St. Jean d'Acre* on the lower deck, while in the *Marlborough* the men were more distributed on the different decks, and greater attention was paid to ventilation of the between decks. Only fourteen inches space was allowed to each hammock in the former ship; and so thoroughly was fresh, cool air excluded from the men while asleep, that the air above the hammocks was found to be from eight to ten degrees hotter than the air below the hammocks, and so offensively impure as to cause nausea to any one going down from the open air. With such a state of things, it is not wonderful that the health of the ship was so bad during the two years while on the station, that it was at last found necessary to send her to England to be paid off. Besides several features of resemblance in the symptoms of the pleuro-pneumonia in the *St. Jean d'Acre* and *Cressy* to the lung disease in cattle, it is to be noted that

there are good grounds for suspecting that the affection was communicated by the sick landed from the vessels to other patients in Malta Hospital.—*Med. Times and Gaz.*, Jan. 23, 1864.

15. *Pain in the Stomach following the Ingestion of Food, successfully treated by Manganese.*—Dr. ARTHUR LEARNED observes that pain caused by food is a very common functional affection of the stomach, and it affects women more frequently than men. Its ordinary position is at a spot just below the ensiform cartilage, but it may be localized at other points over the region of the stomach. At times it is diffused over a considerable space. When it has continued some time, and especially if its seat is the spot first mentioned, the affected part feels sore on pressure, and this soreness may remain after cessation of pain. In many cases pain extends a good way upwards beneath the sternum, more rarely it is diffused downwards towards the umbilicus, or even below it. It frequently extends towards the right in the track of the duodenum, and is sometimes experienced in the cardiac region itself. In many cases pain shoots from the part locally affected as from a focus, in various directions through the thorax, frequently to the upper part of the back.

The perception of pain by different individuals is variable, which partly accounts for the varying descriptions of the present affection. By some patients it is described as a dull continuous pain, by others as of a tearing, gnawing, or scraping nature, or like that which might be caused by a tight ligature.

The pain usually comes on from a quarter of an hour to an hour after a meal, but in severe cases is induced by taking even a few morsels of food. Its duration is uncertain, but it usually lasts some hours. There appears to be always a short interval between the time of swallowing the food and the occurrence of pain. A valuable means of diagnosis between it and the pain of ulcer of the stomach, in which pain generally happens immediately on swallowing solid food, is thus afforded. But the intensity of pain affords no measure of the gravity of the disease. The pain of cancer or of other organic diseases of the stomach may be less severe than that which is purely of a functional nature. Flatulence with a sense of distension are experienced in some cases, while in others they are entirely absent. Constipation is not a prominent feature of the disease.

The pain and tenderness are seldom connected with gastritis, as their transient nature, as well as the accompanying symptoms, sufficiently prove. They are simply an expression of exalted sensibility of the mucous membrane of the stomach, which becomes intolerant of the natural contact with the food, or else of the gastric juice itself. The facts that the pain does not come on until the food has been some time in the stomach, and that albuminous food—that which requires gastric juice for its reduction—causes suffering, while starchy aliments cause it in a less degree, or not at all, support the idea that the gastric juice is its source. I have been led by several circumstances to the belief, that the epithelial coating of the gastric mucous membrane is imperfect; that it is either shed too rapidly, or, owing to its imperfect growth, is inadequate for the protection of the delicate surface which it covers. Thus, the state of the tongue whose surface is continuous with that of the stomach, is generally very characteristic of the disease. Owing to a denudation of its epithelial covering, its extremity is very red, and its irritable-looking papillæ stand prominently out. The effect of treatment also proves that inflammation is not concerned in the disease.

I have thought it necessary to describe in some detail the nature of the disease before bringing forward a new remedy for it, because there are other painful conditions of the stomach which are not benefited by the same means. Its successful use will, therefore, greatly depend on accuracy of diagnosis. The gastric pain caused by gout, generally connected with an excess of acid is not removed by the same treatment; the pain which attends organic disease of the stomach is little influenced by it, and the same may be said of the neuralgic pain which is especially apt to occur when the stomach is empty.

In the treatment of the disorder before us, direct sedatives seldom give more than temporary relief. Opium has the great disadvantage of inducing constipation. Prussic acid, with or without alkalies, so useful in some kinds of stomach



DEC 1969

WESEY



ing from chronic bronchitis of long standing are so liable. Its effect as a remedy is gradually to lessen the amount of expectoration, and with it the cough and dyspnoea, and at the same time to render patients much less subject to catarrhal attacks at particular seasons or changes of weather."

17. *The Simultaneous Employment of Perchloride of Iron and Ergot of Rye in Albuminuria.*—Dr. SocQUET, in the first instance, and afterwards Dr. CHATIN, both physicians of the Hôtel Dieu, of Lyons, have employed the perchloride of iron and ergot of rye for the prevention of the loss of albumen in the urine, and the results they have obtained are deserving of notice. The cases observed were some men of bad constitutions, weakened by former unfavourable hygienic conditions, such as insufficient food, and dwelling in damp and badly-ventilated localities. The dropsy, in all the cases, at first confined to the face, had successively attacked the limbs and peritoneum. The urine was pale and inodorous, and contained large quantities of albumen, and in one case microscopic examination revealed the presence of the remains of renal epithelium. Immediately on their admission into the hospital these men were subjected to diaphoretics, alkaline diuretics, uva ursi, and digitalis, though without any good result; but at last they took the ergot of rye and perchloride of iron. These medicines were given in progressive doses, beginning with 20 drops of tincture of the perchloride and 50 centigrammes of ergot of rye. Every two or three days these doses were methodically increased, and carried successively to 30, 40, 50, 60, 70 drops of tincture of the perchloride, and to 75 centigrammes, 1 gramme (about 15 grains), and three grammes of the ergot. Under this treatment the albumen in the urine rapidly began to diminish; in ten days it disappeared completely, and in ten days afterwards the different dropsical effusions disappeared also. In one of the cases, the treatment having been suspended a little too soon, the albumen again appeared in the urine. In order to judge comparatively of the effects of the perchloride and the ergot, the perchloride was administered alone, when the albumen diminished; but this diminution, although rapid at first, was afterwards very slow. The ergot being added to the prescription accelerated the cure, and four days after its administration there was no more albumen in the urine. M. Perron, in making some remarks on these cases, observes that the ergot and the perchloride of iron appear to have a beneficial effect on the albuminuria, but that their use constituted the treatment of a symptom rather than that of a disease, and that they are not therefore calculated to supersede the use of other measures intended to remove the original malady.—*Brit. and For. Med.-Chir. Rev.*, Jan. 1864.

18. *Treatment of Tendinous Rheumatism by the External Employment of Sulphur.*—Tendinous rheumatism, according to Dr. RENARD, differs from acute rheumatism by the absence of the general symptoms, and from the chronic by the presence of local inflammatory symptoms. Dr. Renard suffered from this complaint himself after an attack of acute rheumatism, for which he was copiously bled. The parts affected were the tendons of the hamstring muscles, and no improvement resulted after a long course of diaphoretics, camphor, terebinthinate, and other liniments, and the administration of the solanaceae. At last Dr. Renard saw a passage in an English medical journal, stating that persons suffering from rheumatism in the legs had only to dust the inside of their stockings with sulphur. He immediately employed this simple remedy, the sulphur being the commercial flowers of brimstone, which contain some sulphurous acid. The curative effect was very well marked, for Dr. Renard walked in the evening, then renewed the sulphur in the stockings before sleeping in them, found himself very much relieved the next morning, and nearly quite cured on the morning after. A few days later, he left off the brimstone, and the pain reappeared in the soles of the feet, but yielded very soon to the reapplication of sulphur. Since the year 1857, when he was first attacked, the same experiment was repeated every winter when he was suffering from chronic tenodynia, either in the hams, the heels, or the elbows. He felt under the influence of the contact of the flowers of brimstone, the skin becoming hotter, slightly excited, and more disposed to sweating; and as soon as this effect was produced, the relief of the

pain seemed to be immediately marked. Whatever may be the explanation of the manner in which sulphur exerts its curative agency, Dr. Renard affirms that it has a beneficial effect upon the rheumatic pains of the tendons, and that this action is the more rapid and certain in proportion as the tendons are more superficial and the sulphur is kept more closely over the painful parts.—*B. & F. Med.-Chir. Rev.*, Jan. 1864, from *L'Union Médicale*, April 21, 1863.

19. *Male Fern in Tapeworm*.—Dr. ALEXANDER FLEMING gives the following as the result of his extensive therapeutical inquiries as to the usefulness or otherwise of the oil of male fern in tapeworm and the best mode of exhibiting the drug. These inquiries embrace 100 cases.

*Sex.* Of these 100 cases, 30 were males, and 70 females.

The remarkable preponderance of the female sex among the subjects of tapeworm, here shown, and, as I believe, for the first time on numerical data, is full of interest in relation to the cause of the disease, and most deserving of further inquiry. The great majority of the cases embraced in this report are taken from hospital out-patients, among whom the women suffer frequently from dyspepsia, very much more so than do the men; and we can readily understand how the "measle" will have a higher chance of escaping death in a weak stomach, and subsequently making a home for itself in the bowels. As respects the diet itself, the risk run by men must be greater than that by women; as they eat a larger proportion of animal food, and, in Birmingham especially, of pork.

Our returns show that the male-fern, as a remedy, is of equal efficacy in both sexes.

*Age.* The age of the patient is not mentioned in 8 of the cases. Of the remaining 92, the average age of all, in round numbers, is 29; of the females, 30; of the males, 28. The returns include cases of all ages except infancy, and prove that the oil of male-fern is an efficient remedy as well in the child as in the adult. A child of 1 year and 11 months is the youngest, and a woman aged 69 the oldest example. The exclusive milk diet of infants, and consequent freedom from the cause of the parasite, explains their immunity from tapeworm.

*The Duration of the Disease* is not given in 33 cases. Of the remaining 67, it is stated to vary from a few days, as in 4 cases in Dr. Anderson's schedule, to 36 years, as in the example reported by Mr. Anderton. There are 11 cases whose duration varies from 6 weeks to 10 months; 16 are reported of 1 year's duration; 9 of 2 years; 4 of 5 years; 3 of 7 years; 3 of 10 years; 1 of 12 years; 1 of 14 years; 2 of 20 years; and 1 of 36 years. The returns show that the oil of male-fern has been as efficient as a remedy in cases of long standing as in the more recent.

*Previous Treatment.* In 35 of the cases, it is stated that there was no previous treatment. Among the remedies which had been used in the others, kousso was employed twice—once with, and once without success. Turpentine had been given on fifteen occasions—seven times with, and eight times without success. The oil of male-fern had been previously used five times—three times with, and twice without success. In one of those cases where it had failed, it was subsequently given in mixture with milk, in the mode which I have suggested, and with perfect success.

*Dose, Time, and Mode of Administration.* *Dose.* The medicine has been administered in doses of a few minims, of half a drachm, of one drachm, one and a half, and of two drachms. The returns show that one drachm is a sufficient dose; at least, in the great majority of cases. The larger doses more frequently excite sickness, vomiting, and diarrhoea.

*Time.* In many of the cases, the oil was given in the morning; in a greater number, at bedtime. The results of the two methods, when compared together, do not show any material difference in success. I prefer to give the drug at bedtime, because the patient should continue to fast for eight or ten hours after taking it; and it is easier to do so during sleep than waking.

*Mode.* In 47 of the cases, the oil was given with milk, in the manner which I had myself suggested in the observations which accompanied the schedule. The following is the formula referred to.

"Mix well of oil of male-fern one drachm, and mucilage half an ounce. The

draught is mixed with one ounce and a half of sweet milk, and taken at bedtime; the patient having omitted the dinner and evening meal of that day. Taken thus, on an empty stomach, the mixture is carried speedily into the intestines, to feed, and at the same time poison the hungry parasite which nestles there. Milk is the favourite food of the worm. Next morning, a dose of castor oil may be given. If necessary, this medication may be repeated daily, one, two, and three times, or until the worm is discharged."

In the remaining cases, the drug was given without milk, in mucilage or some aromatic water. In nearly all these cases comprised in the returns, care was taken to give the remedy on an empty stomach. The two classes of cases, therefore, or those in which the male-fern was given with milk, and those in which milk was not used, admit of a fair comparison; and of the higher efficiency of the first of these methods of exhibition the returns are conclusive. So given, the drug acts more quickly, and at the same time more efficiently. The proportion of failures is nearly the same with both methods; but the length of worm discharged, and, so far as we can judge, the thoroughness of the cure, predominate in those cases where milk was used.

*Physiological Effects.* Sometimes the medicine operates without pain or nausea; more often, there are sickness, griping pains, and purging. Vomiting is reported in ten of the cases. Dr. Bree observes that, under its use, the urine, was usually loaded with lithic acid. In one of Dr. Anderson's cases, the menses, which had been absent for several months, returned after the use of the oil. The vomiting and purging were caused frequently by the second dose, after the worm had been discharged; and must be ascribed to the action of the drug itself on the gastro-intestinal mucous membrane—not, as some have thought, to the dying struggles of the poisoned worm, though it may be that these play some part in their causation.

In five of the 100 cases, the worm was discharged alive. Except that it was expelled with unusual speed, I cannot trace any circumstance to account for the living state of the parasite in these examples.

The largest portion of tapeworm which is reported to have been passed is fifteen yards. This was in Dr. Bennett's case. No mention is made of any other species of tapeworm than the *tania solium*. Large round worms were discharged in two cases.

The worm was for the most part expelled after the first dose, but in a few cases not till after the second or third dose. The worm was often passed before any purgative was taken, and separately from the ordinary evacuation. In one instance recorded in Mr. Thompson's schedule, the worm was discharged upwards by vomiting. This was the case of a female aged 40, who had suffered many years from tapeworm. She took one drachm of the oil of male-fern in milk, according to my formula; and, in the course of an hour, vomited a very long tapeworm, which was quite dead. None passed by stool. After two days, the draught was repeated; and she passed a large quantity of dead and broken tapeworm. The patient had previously taken various remedies without success. In Dr. Anderson's schedule, the case of a girl aged 18 is narrated, who became very sick after taking two drachms of the oil of male-fern in milk, and vomited a large round worm. She was afterwards purged smartly, and passed a quantity of joints of tapeworm.

The average time which elapsed between the administration of the oil and the expulsion of the parasite was six hours. It was discharged in half an hour in seven cases, in one hour in nine cases, in two hours in six cases, in three hours in three cases, in five hours in six cases. The longest interval mentioned is twenty-four hours.

In several of the cases, the worm was passed in a broken and softened state. In these cases, a considerable interval had elapsed between the taking of the oil and the expulsion of the worm, the softened condition of which was probably due to a more or less complete digestion of the already poisoned and dead worm.

The head is reported to have been found in three cases (schedule of Mr. Spender); but, in one of these, its discovery rests only on the authority of the patient. It is generally thought that the rarity with which the head is obtained is due to its not being killed and detached with the body; but it seems impro-



bable that the poison should take more effect on the body than the head of the creature, and which it meets first in its passage downwards from the stomach. According to Dr. Nelson, the food is taken in chiefly by the head. I am more inclined to refer the rare discovery of the head to its solution in the digestive fluids. Thin and delicate, it must be easy of digestion. Moreover, placed higher up in the canal, it is in closer proximity to the more active solvent juices. The thin and translucent neck, though found more often than the head, is also generally absent; and probably for the like reason. I am disposed to refer relapses to the growth of other worms, which have escaped the action of the poison, and not to the resprouting of the old head.

*Duration of the Cure.* Though relapses often occur, there is reason to believe that the cure is permanent in a large proportion of the cases. The length of time (one year) assigned to his inquiry, and the difficulty of ascertaining the future history, especially of hospital patients, render the returns in reference to this important point unavoidably of less value than we could desire. I may mention in this place, that Mr. Osborn in a note to his schedule, states that two cases of tapeworm are known to him, both females, of 38 and 17 years of age respectively, where the oil of male-fern was used with success, and where the patients remained, to his knowledge, well for many years.

In concluding this report, it is only just to remember, in connection with our subject, the early labours of Peschier of Geneva, and dating so far back as 1830, but which had been almost overlooked in England until Dr. Christison, in 1853, gave the sanction of his authority to the results of Peschier's trials. The later experiences of Drs. Gull, Jenner, Bennett, Willshire, Ransome, and others, have abundantly confirmed their observations, and, conjoined with the results of the present inquiry, establish beyond doubt the great efficacy of the oil of male-fern in tapeworm, and its superiority to the other known remedies of this disease. Further, our report points very decidedly to the most efficient mode of exhibiting the drug; and the whole inquiry has, as I have reason to know, rendered excellent service to therapeutics by making the virtues of the oil of male-fern more widely known and employed through the profession.

It remains only for me to offer my best thanks to all the gentlemen who made returns to me for their valuable aid in this inquiry.—*British Med. Journal*, Jan. 16, 1864.

20. *Diet in Diabetes.*—DR. EDWARD SMITH concludes some interesting observations on this subject with the following summary of the proper diet in diabetes.

1. *Fluids.*—To be limited by degrees daily until they shall not exceed five pounds and a half in both fluid and solid food. Of this quantity two to three pints should consist of new or skimmed milk, and one pint, or less, of tea. In the cold season and at night they should always be given when hot. Of all alcohols brandy is the best, and may be given with water only, or added to milk, or beat up with egg and milk, and given several times daily. No fluid should be given in greater quantity than half a pint at a time, and when milk is reduced in volume by cooking, the daily quantity of fluid must be made up by an additional supply of the same or other fluid.

2. *Solids.*—Dr. Prout's combination of eggs and milk (with sharps substituted for bran) is excellent. Four ounces of sharps and 4 oz. of peas, beans, or lentils may be made into bread or pudding, with milk, or into omelettes with eggs and herbs. Eggs and gelatin may be given when starchy food cannot be altogether intermitted. Eggs, gelatin, cheese, gluten, bread, meat, fat, and oils may be given as largely as they can be digested. The free use of salad oil should be urged, whether in the cooking of fish or flesh, or in the use of water-cress as a salad or drunk alone, so that several ounces may, if possible, be consumed daily; but as there are in all persons preferences and dislikes in reference to particular fats, that kind—whether butter, suet, oil, or fat of meat—should be allowed which is the most agreeable. Four oz. of sharps, 3 oz. of wheaten flour, 5 oz. of peas, 1 lb. of meat, 2 oz. of cheese, 2 pints of milk, and 3 eggs, will afford more than about 13 oz. of carbon and 1 oz. of nitrogen daily.—*Lancet*, Feb. 6, 1864.

21. *Sudden Death from Obstruction of the Pulmonary Artery by Coagula.*—The following remarkable case of this is recorded in a recent number (Jan. 30, 1864) of the *Lancet*:—

"Mary A—, æt. 23, was admitted into St. George's Hospital on the 30th of September, 1863, with slight febrile symptoms. She was an hysterical but healthy girl. The symptoms rapidly subsided, and she became convalescent. She was about to leave the hospital recovered, when some stiffness and swelling of the left leg was observed, and she decided to remain a day or two longer. The same day the nurse was called to her at the water-closet, and found her in a fainting state, barely conscious. She died in a few minutes afterwards. An inquiry into her history showed that her previous health had been always good until five weeks before admission, when she had complained of pain in the chest. Ten days before she entered the hospital these symptoms had increased so far as to induce her to keep her bed, and she had several distinct rigors. The severity of the attacks must have subsided before admission, when the skin was cool and the tongue clean. She had quiet, rather frequent pulse, and the aspect of health. The patient had been treated at first with ammoniated salines, and afterwards was given valerian and aloes. Close questioning of her friends after death proved that she always enjoyed good health.

*Autopsy, sixteen hours after death.*—The body was plump and well nourished; a good deal of fat was present in the abdominal walls. The legs were slightly œdematous. The brain and its arteries were healthy. The left ventricle of the heart was quite uncontracted; the right was partly contracted. The pulmonary artery was entirely filled with partly decolorized clot, which was more or less adherent to its walls. This extended from the pulmonary valves to the bifurcation, and thence into both branches, and so on to the smallest branches which could be reached by dissection. In the lung, here and there a small ramification was found which was empty; but the right and left pulmonary artery, as well as the main trunk, were entirely obstructed. The fibrin was hard, and it had the appearance of having been formed for some time. The valves of the heart and the aorta to its end were natural, as also were the carotid and vertebral arteries. Lungs, bronchi, and pleuræ were healthy. The right leg was more obviously œdematous than the left, and its vessels were therefore examined. The deep femoral artery contained a partly bleached coagulum, which commenced with a point at the origin of the vessel, and filled it up as far as it could be followed. The femoral veins of the same limb also contained a clot, which began in a tapering form at the middle third of the thigh, and extended downwards to the ultimate ramifications of the vein. This was black in the centre, partly fibrinous at the edges. It was firm, and fully distended the vessel. Some slight adhesions held together the liver and spleen; these readily broke down, and allowed of the escape of a quantity of creamy matter, which was contained in a cavity between the liver and spleen, formed, however, chiefly at the expense of the latter. Under the microscope no true pus-cells were seen, but there were many nuclei and blood-corpuscles. It was believed that the apparent abscess was the result of the dissolution of a fibrinous block in the spleen. The vagina and cavity of the uterus contained pus.

22. *Clinical Observations illustrating the effects of implication of the Pneumogastric Nerve in Aneurismal Tumours and Morbid Growths.*—This is the title of a paper read before the Royal Medical and Chirurgical Society (Jan. 26, 1864), by Dr. S. O. HABERSHON. After referring to the complex distribution of the pneumogastric nerve, and to the important symptoms of disease produced by the implication of its branches, the author proceeded to describe several cases of thoracic aneurism in which the branches of the recurrent laryngeal nerve, or the trunk of the pneumogastric, were involved. The first case was that of a man, aged 39, who had been engaged in laborious work at Chatham and Woolwich dockyards. Two months before death he began to suffer from hoarseness, and the laryngeal symptoms were more marked than any other. There were paroxysms of urgent dyspnoea and slight dysphagia. Five days before death hemorrhage from rupture into the trachea commenced; and on the morning of

his death the bleeding suddenly became profuse, and was quickly fatal. Dilatation of the aorta, double aneurism of the arterial innominate, and perforation into the trachea, were found. There was pressure upon the commencement of the recurrent nerve, and commencing degeneration of the muscular fibre of the laryngeal muscles on the same side. As to the physical signs, dulness and double bruit were produced immediately over the first bone of the sternum, but there was no bruit over the aortic valves. No pain had been complained of. The value of the laryngoscope had been shown in demonstrating that no disease of the larynx existed, slight œdema of the mucous membrane only being present. The second case was that of a sailor, aged 35, who had apoplexy, with aphonia and symptoms resembling phthisis; aneurism was, however, suspected. The recurrent and the pneumogastric nerves were both compressed: the muscles of the larynx were on one side pale and wasted, and the lung on the same side was in a state of asthenic pneumonia. The thoracic duct had also apparently been compressed. In the third instance recorded, the symptoms of cardiac disease obscured those of aneurism. There had been pericarditis and endocarditis, and fibroid degeneration of the muscular fibre of the left ventricle existed. The patient was a groom, aged 45, and two months before death symptoms of catarrh and bronchitis came on; the heart's action was irregular and tumultuous; the pulse very feeble, but without bruit. Afterwards a triple sound was produced below the nipple, and with renewed bronchitis there were signs of pleuropneumonia of the lower lobe of the right lung. No pain and no dysphagia were complained of, but paroxysms of urgent dyspnoea, with extreme faintness; in one of these attacks he died. In addition to the degeneration of the heart, an aneurism was found at the commencement of the transverse arch; and the pneumogastric, after giving off its recurrent branch, passed directly over the sac, and the compression of this nerve had determined the pneumonic consolidation of the lower lobe of the right lung. In the fourth case, the recurrent laryngeal nerve was compressed, and had produced paroxysms of urgent dyspnoea, but the dyspnoea was in great measure due to direct pressure upon the trachea. There had been feebleness of the voice, with dysphagia. Pain was of an agonizing character, but also paroxysmal, and it was apparently due to direct pressure on the nerves. The aneurism of the aorta was situated immediately beneath the subclavian, and had ultimately perforated the trachea; but rapid effusion of blood had been prevented by layers of fibrin, and it was probable that the first oozing of blood took place nine months before death. No bruit had been produced, but a ringing second sound; the heart was healthy. The author stated that pressure on the pneumogastric nerve and its branches by aneurismal tumours in the chest led, first, to paroxysmal and spasmodic contraction of the muscles of the larynx; secondly, to diminished muscular power, and to paralysis and wasting of the laryngeal muscles; and thirdly, to pulmonary congestion and consolidation; but that gastric symptoms, such as were found in peripheral pulmonary irritation of incipient phthisis, were not observed in thoracic aneurism. The effect of changed nervous supply of the œsophagus was briefly referred to; spasmodic contraction, and possibly also ulceration, taking place without direct pressure; the author stating that spasmodic contraction from this cause aggravated the effects of the direct pressure of tumours generally. It was likewise mentioned that occasionally no dysphagia existed, because the whole of the œsophagus opposed to the tumour was pushed aside *en masse*. In conclusion, the author detailed an instance of disease affecting the supra-renal capsule, with bronzed skin; and exhibited a drawing from his dissection of a branch of the pneumogastric to the capsule. The irritability of the stomach often present in these cases was referred to this connection. A dissection showing the larger branches of the semi-lunar ganglia, and the manner in which some of these branches were involved in the diseased capsules, was also exhibited.—*Med. Times and Gaz.*, Feb. 6, 1864.

## SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

23. *Statistics of Amputation performed at St. Bartholomew's Hospital, from the 1st of Jan., 1853, to the 1st of Oct., 1863.*—G. W. CALLENDER, Esq., read a communication on this subject before the Royal Med. and Chirurg. Soc., Feb. 9, 1864.

These amputations are so arranged in a series of tables as to show, for a number of consecutive years, the totals of deaths and of recoveries in male and female patients. The operations comprise all the principal amputations, arranged as primary and secondary, and as amputations for disease. After some general remarks, certain deductions from the several tables are detailed. Of 93 primary amputations, 78 recovered, and 15 died; thus 16.1 per cent. of all these amputations prove fatal, or 1 in 6.2; and if the age of the fatal cases, which averages 47 years, be taken into consideration, it appears, for children and for adults under 40, that an unfavourable result after these amputations is an exceptional occurrence. The secondary amputations number 37, and of these 24 recovered and 13 died; so that 35.1 per cent., or 1 in 2.8 of all these operations, prove fatal. Taking primary and secondary amputations together, 7.1 per cent. of those of the upper extremity, and 32.4 of those of the lower extremity, prove fatal; and 21.5 per cent., 1 in 46, of the total of traumatic amputations. There are 228 amputations for disease or for malformations: 182 recovered, and 46 died, or 20.1 per cent. Of those performed at the upper extremity, 18.5 per cent. died; whilst of those which involved the lower, 20.3 per cent. ended fatally. It follows that, of the total 358 amputations, the ratio of mortality are: after all primary amputations, 16.1 per cent.; after all secondary, 35.1; after all amputations for disease, 20.1; after all amputations at the upper extremity, 10.8; after all those at the lower, 23.6; and after all amputations, 20.6 per cent. *Causes of Death.*—Old people are little able to resist the shock of the more severe amputations, the influence of age being most marked with primary operations. Females do not rally so easily as males after the severe shocks which precede and accompany primary amputations, nor after the depression consequent upon amputation at the thigh. The rate of mortality on the totals of cases is 18.9 per cent. for males, and 21.6 per cent. for females. The totals of deaths and of recoveries, as influenced by the age and sex of the patients, are shown in a separate table. After primary amputations, traumatic complications prove fatal at the rate of 40 per cent., and exhaustion at the rate of 20 per cent. of the total number of deaths. After secondary amputation, exhaustion is the chief cause of death, 38.4 per cent. sinking in this way; 23 per cent. die from secondary hemorrhage. Of the total of traumatic amputations ending fatally, 28.5 per cent. sink from exhaustion, 25 per cent. from traumatic complications, 21.4 per cent. from hemorrhage, and 7.1 per cent. from pyæmia. After amputations for disease ending fatally, exhaustion is the cause of death in 28.2 per cent.; pyæmia in 39.1 per cent.; and visceral complications in 15.2 per cent. Taking the four chief causes of death after all amputations, we obtain the following rates of mortality in the totals of fatal cases:—

Amputations.	Hemorrhage. Per cent.	Pyæmia. Per cent.	Exhaustion. Per cent.	Visceral Complication Per cent.
Primary . . .	20.0	—	20.0	6.6
Secondary . . .	23.0	15.3	38.4	15.3
All traumatic . . .	21.4	7.1	28.5	10.7
For disease . . .	4.3	39.1	28.2	15.2

Of the total 74 fatal cases 24.3 per cent. die from exhaustion, 27 per cent. from pyæmia, 12.1 per cent. from hemorrhage, 16.1 per cent. from visceral complications. After giving the particulars of the cause of death in each fatal case, and the injury or the disease for which the operation was performed, the days in which 74 cases terminated fatally are shown in a tabular form. From this

it appears that deaths from shock, or from other injuries, or from both combined, take place within the first twenty-four hours, and within forty-eight hours the deaths from recurrent hemorrhage occur. Exhaustion is most fatal about the fourth day; secondary hemorrhage is a cause of death from the fifth to the twelfth day; pyæmia from the seventh to the twenty-fourth. Three cases of amputation are referred to, in which death was not accelerated by the operation, the patients dying on the 109th, the 102d, and 93d day respectively; and the paper concludes with an account of certain cases, and of certain sequences of fatal cases and recoveries, showing how necessary it is to mass together a considerable number of consecutive operations before we have a chance of arriving at tolerably just conclusions.

Mr. BRYANT, after remarking on the value of Mr. Callender's paper, said that he was surprised to find some startling difference in the results he had obtained, and in those he (Mr. Bryant) had deduced from a similar kind of analysis of the cases at Guy's Hospital. As regards numbers, his and Mr. Callender's statistics were pretty much alike, but the rate of mortality was very different—in the former 20 per cent., in the latter 25; when, for injuries, the difference was greater still, the mortality at Guy's being nearly double. In amputation for disease, however, it was the reverse. Mr. Bryant asked if it were possible that a difference of practice at the two hospitals could reconcile these differences? At Guy's, conservative surgery was carried to an extreme degree, and possibly too far. Then, perhaps, at St. Bartholomew's the practice might run a little towards the other extreme. He spoke, however, on this subject with great diffidence. Mr. Bryant then alluded to the very marked difference in the mortality after amputation of the upper extremity, in his and in Mr. Callender's series. Mr. Bryant then asked for the simple results as regards amputation of the thigh for disease of the knee-joint, as he wished to compare the mortality of this operation and that of excision of the knee-joint. The mortality of the latter was about one in five; whilst at Guy's and St. George's that of amputation of the thigh was one in eight.

Mr. CALLENDER said that the great discrepancy Mr. Bryant had alluded to, was accounted for by the difference in the ages of the patients in his own and in Mr. Bryant's series. Many of the traumatic cases were lads from printing offices in the neighbourhood, and the injuries were less severe than those from railway accidents. Then as regards the great mortality after amputation of the upper extremity, several of the cases were exceptional. Two died of erysipelas, and two were at death's door when the operation was done. He had not made an analysis as to the mortality from amputation above the knee, but would add a note on this point to his paper. In reference to the remarks by Mr. Spencer Wells, he said that, at St. Bartholomew's, great pains had been taken to improve the condition of the wards; and, moreover, a surgical registrar had been appointed, not merely to take notes of the cases of individual patients, but to watch the general health of the patients in the wards, to report upon any epidemics that might appear, and generally to supervise the hygienic arrangements, under the direction of the surgical staff.

**24. New Method of arresting Venous Hemorrhage after Amputation.**—It is by no means uncommon for an annoying venous hemorrhage to take place after amputations, and though this may be often checked by elevating the stump or by pouring cold water over it, still these measures frequently are tardy in their effect and sometimes fail. Mr. GEO. H. PORTER has proposed (*Dublin Quart. Journal Med. Sci.*, Nov. 1863) an ingenious plan for arresting the venous hemorrhage in these cases. He observes "that surgeons in this country are not favourable to the practice of ligaturing a vein, although having the sanction of such authorities as Hey, Desault, and Hennen. The dangerous, and sometimes fatal, phlebitis following such procedure, has given us a wholesome dread of tying, or, in any way inflicting injury on these vessels. Again, I should much fear that placing a ligature round both vein and artery—as, for example, the femoral vein and artery—(Desault) would prevent the cord having the desired effect on the latter, as the vein must hinder it from dividing the internal and middle coats of part of the tube, and thus render the possibility of secondary hemorrhage to be

apprehended. It occurred to me that the trouble might be got rid of by the simple contrivance of temporarily grasping the mouth of the vein within the jaws of a very small Dieffenbach's artery forceps, having connected with it a string to take it away when all bleeding had ceased. Its pressure effectually controls the flow of blood; its bulk forms no obstacle to bringing the parts into close approximation; and it can be removed with the greatest ease, almost, indeed, with the same facility that we draw away a ligature. At my request, my colleague, Mr. Collis, lately tested the plan with the most marked advantages, in a case of amputation of the thigh, in which bleeding from the femoral vein proved troublesome. My most sanguine expectations were realized by its action, as it instantly sealed the vessel, and so guarded against further hemorrhage and purulent absorption. It inflicted no injury; and, in the case above mentioned, it was pulled away in forty-eight hours without causing any pain to the patient."

25. *Varicose Veins.*—Mr. SKRY remarked (*Lancet*, Jan. 2, 1864), that the treatment of varicose veins involves two objects: "1st, the increase of power to these organs; and 2d, the turning the current of the venous circulation into healthier channels. The first is effected by the liberal administration of nutritive stimulants. The second object has tested the inventive faculties of many surgeons. I leave it to others to commend the various schemes adopted by them. I discountenance, from long observation of its incompetency to cure, the employment of the needle, whether through the vein or under it, single or double. It has these objections: 1st, it is not unattended with danger; and 2d, it fails to obliterate the vein, except at the point of its application, mainly because the applications cannot be safely made in numbers proportionate to that of the veins affected. I have at present in St. Bartholomew's Hospital a woman under treatment for varicose veins of the leg, whose limb was jeopardized by the employment of the needle a year ago. A long illness, with severe inflammation and extensive abscesses, followed. The same limb is again under treatment for the original disease. There is no danger in making any number of small eschars on the most projecting surfaces of varicose veins, if made with an escharotic composed of two-fifths of pure potash and three-fifths of powdered lime. This powder, well combined, is made into a paste with alcohol. Whether other escharotics are dangerous in their operation on veins I do not stop to inquire; I only know that the Vienna paste, combined as I have above described it, is not. These eschars may be made in any number proportionate to the extent of the disease. I have treated perhaps 250 cases in the course of the last ten years, and I continue to treat them, by the same means. The paste is applied over the most projecting parts of the vein in the following manner: through a series of about four layers of adhesive plaster a circle is cut of the size of a threepenny-piece or smaller. The influence of the escharotic extends through the vein; and it is curious to observe that from the hour of its application the entire vein appears to be obliterated, and is undetectable to the finger on pressure. From ten to twenty-five eschars may be applied between the ankle and the knee. Twenty minutes suffice for the full operation of the escharotic, and an average of one month for the cure. In very weak constitutions the ulcers will heal very slowly, unless well-directed efforts be made to give force to the general system."

26. *Erectile Tumours of the Glans Penis.*—Dr. E. D. MAPOTHER reported to the Surgical Society of Ireland a case of this, and exhibited a drawing of it. The growth starts from left edge of the meatus urinarius, which it pushed into the form of a semicircular slit and projected outwards to about the size of a small hazel-nut. The tumour was not congenital, having been first perceived nine years before, when he was 26 years of age. It produced some pain, an uneasy stretching feeling at the urethral orifice, but not sufficiently annoying or constant to make him desirous of submitting to any operative procedure.

A somewhat similar growth has been observed about the orifice of the female urethra.

Mr. RICHARDSON exhibited at the same meeting of the society a drawing of a

congenital erectile tumour of the glans penis which came under his observation in a boy three years of age. The ulceration of the glans was far more extensive than in Dr. M.'s case.

27. *Osteo-Aneurism*.—In our number for April, 1863, pp. 505-6, we noticed a very interesting case of this reported by Dr. MAPOTHER, and expressed the hope that the future history of the case would be made known, as the cure was too recent to decide as to its permanency.

At the meeting of the Surgical Society of Ireland on the 8th of January, 1864, Dr. P. reported that the patient when last heard from, in October, 1863, a year after the operation, was in the most perfect health.

28. *Lithotritry without Injections*.—Mr. HENRY THOMPSON states (*Lancet*, Feb. 20th, 1864), that for some time past he has practised lithotritry—first without preliminary injection of the bladder, and secondly, almost without any injections subsequent to the setting; and he is satisfied that this mode of operating is a considerable improvement on the usual practice.

"My experience of the method," he says, "warrants me in speaking confidently. During the last three years I have, with the exception of a few patients only, always operated without the preliminary injection. In these some unusual condition has generally existed rendering injection desirable: this will be referred to presently.

"Hitherto all operators have agreed in recommending that the urine should be first withdrawn, and that from four to six ounces of warm water should be injected into the bladder before introducing the lithotrite for the purpose of crushing the stone. It has been assumed that the presence of at least that quantity is essential to protect the walls of the organ from injury when the lithotrite is opened and closed. And further, it has been considered desirable that the fluid should be present in *known* quantity. Hence lithotritry has often been regarded as inadmissible in a case where the bladder has been so irritable as to contain only an ounce or two of urine; and lithotomy, or a prolonged course of sedatives, baths, and injections, usually ending in disappointment, has been resorted to with the view of enabling the bladder to retain the orthodox 'four to six ounces.'

"I am quite sure that this quantity is unnecessary. Of late I have been content with two or three ounces, and, taking proper precautions, have crushed with the best results in an ounce of fluid. Neither does it appear necessary to know the exact quantity before commencing; for on first opening the lithotrite in the bladder, which the operator does very gently as, feeling his way, the amount of space available for his manipulations is at once manifest. Moreover, space in the bladder does not necessarily correspond with the presence of some fixed quantity of water therein. In some conditions of the bladder—or, to speak more accurately, perhaps, in some bladders—two or three ounces afford as good a working area as five or six ounces in others.

"It may be said—What is gained by the omission to inject? A very considerable advantage. It appeared to me very early in my experience of lithotritry, practised by others as well as myself, that most of the untoward occurrences met with arise either from too much or too rough manipulation, and that any step towards the improvement of the operation must for the most part be made by diminishing the amount of instrumental contact with the bladder and urethra. Hence, instead of introducing a catheter to draw off the patient's urine, and applying a syringe to inject a known quantity of water, I asked the patient to retain his urine for a little less than the accustomed period before the sitting; that is, if naturally he was able to retain his urine for about an hour, he was requested to pass it forty minutes before the time of the visit. The lithotrite was then at once introduced, and the crushing proceeded with. It is certainly undesirable to operate when the patient is urgently wishing to pass urine; hence it is as well to commence rather too soon than too long after the last act of micturition. In this manner the operator deals with a bladder not yet aroused to action, as it is sure to be when a catheter has been introduced, and when, moreover, the viscus has been unnaturally distended; for

however slowly and gently a syringeful of liquid is thrown into the bladder, such injection is more irritating than the oozing in of the natural secretion by the ureters. An entire "sitting," then, consists in introducing the lithotrite; in crushing the calculus five or six or a smaller number of times, for which two or three minutes is a sufficient period; and in withdrawing the instrument.

"Such may be regarded as the rule of practice. But when the bladder is much atonied, its coats being deficient in tone, and a large portion of urine remains behind after each act of micturition, it is mostly advantageous to empty the bladder, and inject a few ounces of cool water. The stimulus of water at 60° or 70° Fahr. sometimes gives tone for a time to the muscular coats, and so aids in producing a better formed cavity for operating in than a capacious atonied, and flaccid bladder presents.

"Next, in reference to injections made subsequently to the crushing of the stone, little or nothing appears to be gained by their employment. Three or four rapid injections through a large evacuating catheter generally cause more and are calculated to do more mischief, than the operation of crushing. Besides it is not the best time to make them in relation to the object of their application. If used at all, it should be after nature has been allowed a period of three or four days at least in which to expel the *débris*. It is a remarkable power that which the urinary apparatus possesses of expelling foreign bodies, not only from the cavity of the bladder, but from the innermost termination of the organs in the kidney, and it appears perhaps to be scarcely enough relied on by some operators. It is a most happy provision for the safety of the individual, and, after all, relieves humanity of an infinitely greater number of stones than the surgeon does. He only comes in to remedy the exceptional failures of Nature. I like to feel how efficient an ally there is for the lithotritist in this said power, and to leave the expulsion of the *débris*, when properly pulverized, very much to those admirably adjusted arrangements existing for the purpose; and my experience of their capability in this respect is considerable and satisfactory. Only, when it fails, we must, as before, step in to aid Nature again, and promptly.

"On referring to my case-book, I find, in relation to the first question, that I have crushed upwards of a hundred times without using a preliminary injection; and, in relation to the second question, that I have completed successfully eleven cases of lithotrity, most of them recent, without once using the evacuating sound. The *débris* have been easily and entirely expelled by the natural powers of the patient."

29. *Subpubic Puncture of the Bladder.*—To avoid the danger of peritonitis, which sometimes follows the operation of puncturing the bladder above the pubes, M. VOILLEMIER has devised the following operation. The patient is placed on his back, with the legs slightly separated; the pelvis is raised by a thick cushion, so as to bring the pubes forward, and to prevent the distended bladder from embarrassing the operator. An assistant, standing at the left side of the patient, draws the penis downwards and backwards. Sitting at the patient's right side, the surgeon feels with his right fore-finger for the suspensory ligament, and with his left hand he introduces by the side of this ligament a trocar, curved so as to pass round the pubic bone. During this stage of the operation, the instrument is carefully supported and guided by the right hand, lest the trocar should turn too suddenly and come into contact with the bone. The canula having entered the bladder, the trocar is withdrawn. The operation was successfully performed by M. Voillemier, in the Hospital St. Louis, on October 14th. The cicatrization of the wound was complete in forty-eight hours; and, at the time of reporting, no trace of the operation remained, beyond a fibrous cord indicating the passage of the instrument.—*Brit. Med. Journ.*, Jan. 23, 1864, from *Gaz. Méd. de Paris*, 14 Nov. 1863.

30. *Left Ovary in the Sac of an Oblique Inguinal Hernia, occurring in a Young Woman.*—Mr. HOLMES COOTE communicated the following example of this to the Royal Medical and Chirurgical Society (Jan. 12, 1864):—

A young woman was brought into St. Bartholomew's Hospital with a swelling in the left groin, and suffering from the symptoms of strangulated hernia. In



the course of a few hours the usual operation was performed, when the ovary and the Fallopian tube were found in the sac. A similar malposition of parts was subsequently noticed on the opposite side of the body. The left ovary was removed, some thickened omentum cut away, and the patient was put to bed; but the sickness and constipation continued, and she died four days after the operation. The cause of the sickness, etc., was displacement of the stomach and transverse arch of the colon. Mr. Coote raises two questions: 1. Was the displacement of the ovaries congenital, or the consequence of the hernia? He inclines to the former opinion. 2. The woman stated that she had always menstruated regularly. Now, on the examination of the body, it was found that both ovaries were well developed, and that the formation of the Graafian vesicles was going on naturally; but the Fallopian tubes were quite impervious, the uterus was completely absent, and the vagina was a short canal—an inch and a half in length, and terminating in a thin membrane. She said that she had been menstruating the week before her admission; and some of the female attendants at the hospital noticed the usual marks, though faint, upon her dress. Are we to admit the possibility of menstruation under this abnormal condition of parts?

Mr. Partridge said it was a very interesting question to decide whether menstruation occurred, as was stated, under such circumstances as obtained in Mr. Coote's case, or whether it was merely a vicarious action. There was another question of great importance in a moral point of view, which presented itself to surgeons in such cases. Were they justified in emasculating, as it were, a woman in whom the ovaries were thus involved? A case had lately come under his care in which a difficulty of this kind existed. The patient was a male child, with the parts of generation so imperfectly developed that it was mistaken for a female, and christened and educated as such. It was discussed whether the testicles should be removed. The surgeon in attendance thought that they should, as their removal would be advantageous to the child in assisting it to keep up its assumed sex. Mr. Partridge decided, however, that the operation was not justifiable, and it was not resorted to. Mr. Partridge then referred to two cases in which the uterus was absent; the one was an unmarried, the other a married woman. In each the vagina was short, but the clitoris, ovaries, and breasts were fully developed. In neither of these cases had there been any menstruation.

31. *Polypus in the Urethra in Man.*—M. BEYRAN, having had under his care a case of urethral polypus in a man aged twenty-six, has collected the few recorded instances of this kind, and has communicated the results of his investigations in a memoir read before the Surgical Society of Paris. Urethral polypi, he finds, are most commonly seated at the commencement of the canal, in the navicular fossa; they may, however, occupy partly also the spongy portion, and sometimes even the entire length of the urethra. They are almost always met with on the lower part of the canal. The causes producing them are obscure. The ages of the patients have varied from fifteen to thirty years: but old age does not appear to be altogether exempt. The development of the tumours does not appear to be favoured by acute or chronic gonorrhœa, nor by syphilis; but M. Beyran thinks that chronic inflammation of the urethral mucous membrane, together with masturbation, are not altogether foreign to their production. The commencement of urethral polypi is not characterized by any remarkable symptoms; but as they increase in size and invade the urethral canal, one of the first morbid signs which attracts the patient's attention, is that the flow of urine is affected much in the same way as in ordinary stricture. This symptom is soon accompanied by heat, pain, and swelling of the penis during micturition; and blood is discharged, either pure or mixed with urine. Coitus is painful, and the discharge of semen is impeded. The bladder is incompletely emptied; there are frequent desire to pass urine, and tenesmus of the neck of the bladder and of the rectum, as in diseases of the prostate and bladder. Excrecences of this kind may, unless properly treated, produce perforation and fistula of the urethra. In the cases hitherto observed, urethral polypi in man have presented themselves in the form of small tumours varying in size

from a grain of barley to a pea. They have been fleshy, soft, and of a bright red colour; being very vascular, they have bled readily. Sometimes they have a broad base, sometimes are elongated or pedunculated. The urethra may contain several of them, seated in its inferior wall from the meatus to a distance of two-fifths or four-fifths of an inch from this orifice. The diagnosis is easy when the tumours project and can be seen; but while they are small, and especially if they be far back in the urethra, and the symptoms resemble those of stricture, mistakes are easily made. The diagnosis, however, may be essentially aided by observation of the phenomena produced during micturition, by the extreme readiness with which a discharge of blood is produced, and by a careful exploration of the urethra. The prognosis is not unfavourable, when the polypi are recognized early, and properly treated. But, left to themselves, they produce various accidents, and may even give rise to perforation of the canal. When the tumours are within reach, excision, followed by several applications of nitrate of silver, is preferable to avulsion or to ligature. Bougies, at first flexible and afterwards metallic, should be introduced, so as to repress any tendency to a reproduction of the polypi; and M. Beyran believes that it is useful to cover the bougie, before its introduction, with a layer of an ointment of calomel and savine. If perforation have occurred, the urine must be removed by a catheter, so as to allow the fistula to become healed.—*Gaz. Méd. de Paris*, 21 Nov., 1863.

32. *Structure of Indurated Chancre of the Prepuce.*—In a paper read before the Biological Society of Paris, M. ORDONEZ has given the following summary of the appearances observed by him on making a histological examination of indurated chancre. 1. The epidermis is considerably thickened around the ulcerated part. The most superficial cells all present a central nucleus, tolerably large, with from one to four nucleoli; contrary to what is met with in healthy epidermis, where the cells lose their nuclei as they approach the external surface of the skin. 2. The interpapillary digitations in the true skin are larger at the level of the chancre than in the healthy skin. The epithelial cells are very closely packed, larger than in the normal state, and infiltrated by a very transparent fluid, coagulable by alcohol. 3. At the level of the papillary layer of the skin, small hemorrhagic clots may readily be detected, produced, no doubt, by the rupture of the small capillary loops distributed in the papillæ. Hæmatosine, mixed with red corpuscles in various stages of change, is effused in patches, between the papillary and the mucous layers. 4. The meshes of the cutis vera, from the papillary layer to its deepest portion, are infiltrated with a large quantity of plastic lymph. On merely making thin slices of the chancre, a large quantity of a very transparent, slightly viscid fluid, coagulating slowly on contact with the air, may be made to escape by pressure or by the action of the cutting instrument. This liquid, examined microscopically and with the aid of reagents, appears to be plastic lymph, or blastema. 5. The papillæ are increased in size, without being altered in shape. They are infiltrated with a large number of embryonic or transitory elements of the fibrous or connective tissue. These consist of round or oval nuclei, varying in diameter from .00016 to .00028 and .00036 of an inch; of small fusiform, fibro-plastic bodies in an ordinary state of evolution; and of small bundles of fibres of fibrous or connective tissue in progress of formation, and still presenting nuclei. 6. In the substance of the derma are to be found a number of fibrous cords, with perfectly developed fibres, and presenting a brilliant white aspect, contrasting remarkably with the adjacent tissue. This appearance is best presented by recent sections of the induration, examined by the aid of distilled water; it is also present, but less distinct, in specimens that have been preserved in alcohol or glycerine. M. Ordóñez thinks that the alterations in the skin which he has described, satisfactorily explain the peculiar induration characteristic of the infecting chancre.—*Gazette Médicale de Paris*, 11 Octobre, 1863.

33. *A Specimen of Fracture of the Odontoid Process of the Axis, with perfect Ankylosis of its Apex with the Occipital Bone, and Partial Luxation Forward of the Atlas.*—Dr. PHILIP BEVAN communicated this remarkable case to the Surgical Society of Ireland:—

This specimen was discovered accidentally whilst making a dissection of the ligaments of the spine. On opening the spinal canal, and removing the dura mater, the perpendicular ligament or apparatus ligamentus colli was normal in size and strength, but on removing it, the apex of the odontoid process of the axis was found to be connected by perfect bony union to the anterior margin of the foramen magnum of the occipital bone, whilst its neck was attached to the body of the bone by a fibrous substance, about three-quarters of an inch long, of great strength and thickness, which closely resembled that which ordinarily unites the fragments of a broken patella. On cutting into this substance, the transverse ligament was found of its usual strength and thickness, retaining its normal connection to the atlas on either side, but completely altered in its relations and position; for instead of passing behind the odontoid process, with a concave surface covered with cartilage and synovial membrane, directed towards that process, it now lay between the broken off point of the odontoid process and the body of the axis, with flat surfaces upwards and downwards. It still presented its usual glossy appearance when dissected from the fibrous tissue in which it was imbedded, and was fully as strong as in the natural state; but the smooth, articular surface and synovial membrane were removed from its anterior surface. Not a vestige of either the moderator or suspensory ligaments remained. Having dissected the anterior surface of the spine, the upper articular processes of the atlas retained the normal relations to the occipital condyles; but the lower ones were thrown forwards, considerably in front of their natural position on the dentata, and were supported there by a bony growth from the anterior margin of its articular processes; in fact, the atlas was partially luxated forwards, for want of the support of the odontoid process, and the axis was modelled so as to support that vertebra in its new position.

The anterior atlanto-axoidal ligament was very strong, and must have served to prevent further displacement of the atlas.

On examining the bones the following changes were found to have taken place: The occipital foramen magnum was completely changed in shape, being heart-shaped, instead of oval, owing to the attachment of the apex of the odontoid to the centre of its anterior margin.

Its transverse diameter is greater than the antero-posterior, the former being one inch and a quarter, whilst the latter is only 10–12th of an inch.

The most normal size is the reverse of the above.

The apex of the odontoid is so completely incorporated with the occipital bone, that, but for a slight crack on the right side, no appearance of the line of union would be perceptible; the base of it is smooth as if cut with a knife, where it was attached by a fibrous tissue to the body of the axis. The occipital condyle of the right side is unaltered, but that of the left side is changed in shape, axis, and direction, being flat, circular, and directed downwards and outwards; transversely larger than natural; about three-fourths of an inch in diameter; smooth and covered with cartilage on its surface, but rough and irregular round the margin. The inner surfaces of the condyles are quite smooth, instead of being rough, for the attachments of the moderator ligaments.

The upper articulating surfaces of the atlas are not much altered; the left one is more round than oval, and not contracted in the centre, as in the normal state. The lower articular processes, on the other hand, are much altered, being rough and irregular on the surface, surrounded by a bony growth, as in cases of chronic rheumatic arthritis, and much larger than natural, especially in the antero-posterior diameter; but the chief alteration has taken place in the anterior ring of the bone; it is contracted inferiorly by irregular growths from the lower articular processes. The posterior surface of the ring is prominent and rather rough (instead of being smooth and lined with cartilage and synovial membrane); it was here firmly united to the fibrous tissue, which united the apex to the base of the odontoid process. The lower surface of this ring is thick and broad,

where it lay on the upper surface of a process of bony growth from the anterior margin of the odontoid process.

The axis is also much altered; the body of the bone terminates above, in the base of the odontoid, from which the apex has been broken; from the front of this a bony mass has grown in a groove, on the top of which rested the anterior ring of the atlas, with which it was connected by the above-mentioned mass of fibro-cartilage; the upper articular processes are on different planes, the left being lower than the right, both of them are much enlarged by bony growth from their anterior margin, which overhangs the body of the bone to the extent of a quarter of an inch. This served as a support for the luxated articular processes of the atlas. The surfaces are rough and were covered by a very imperfect cartilage; the right is convex; the left concave.

The remains of the base of the odontoid is rough and very convex towards the vertebral canal; its upper surface is very irregular, being grooved transversely in front for the anterior ring of the atlas and behind for the attachment to the fibro-cartilage. It is much enlarged by the bony growths above described, being about two inches in circumference at the part corresponding to the neck of the process, and is so rough and irregular as to give it much the appearance of the bone represented in Mr. Adams' book, "on Rheumatic Arthritis."

I am not aware of any case similar to the above. Rokitsansky says that, "in a few cases, fracture of the odontoid process has not only not proved fatal, but has existed for a considerable time without union of the fragments. A specimen of this kind is contained in the Vienna Museum."

He gives no particulars concerning it, says nothing of the state of the moderator ligaments, or whether the point of the odontoid was ankylosed to the occiput; nor does he mention the partial luxation of the atlas.

The specimen was taken from a woman aged about 40, who died of dysentery in one of the Dublin unions; all her bones were healthy and strong.

Although it is impossible to obtain a history of such a case, yet I had sufficient evidence that she never had anything remarkable about the motions of her neck; nor had she ever complained of pain or stiffness. Indeed, an examination of the preparation would prove that she must have had considerable power of moving the neck, as the fibrous tissue, which united the base and apex of the densatus, although very strong, would permit a considerable amount of twisting, which with the ordinary circumduction of the remaining cervical vertebrae would be sufficient for all ordinary purposes, and the nodding motions could not have been interfered with.

It was, till lately, a generally received opinion that both luxations and fractures of the odontoid process were necessarily fatal. Thus Chelius says, "that if fractures occur with luxation above the third vertebra, death speedily ensues." Samuel Cooper says, "that whenever the processus dentatus is suddenly displaced or fractured, the effects on the medulla spinalis must be immediately fatal." Sir A. Cooper, Boyer, and Dupuytren, all declare that such cases are necessarily fatal. This opinion can no longer be admitted as regards fractures of the odontoid process, although I believe it is correct as regards luxations of that bone; for I cannot find any case of recovery where this process was proved by dissection to have been luxated without fracture. Two cases of supposed reduction of luxations of the axis are given in Malgaigne, but in both the diagnosis was very doubtful; in the first, the only important symptom was, that the head was bent forwards, so that the chin rested on the sternum. This might have been a luxation of any other cervical vertebra; and, in the second, although the constitutional symptoms were more important, and the head was thrown backwards and to the right side, still it was equally doubtful which vertebra was luxated, or indeed whether any vertebra was luxated. The interesting cases given by Dupuytren in his work "On Fractures," prove that it is extremely difficult to diagnose between severe contusions of the muscles and ligaments of the neck, and luxation of the cervical vertebra. In one of these cases the head rested on the left shoulder, could not be straightened, was accompanied with violent pain in the opposite side of the neck, numbness of the corresponding arm and cheek, difficulty of deglutition, and inability to turn the head without the body; in fact, all the symptoms of luxation were present, and a luxation

was supposed to exist; yet, in a few days, all these symptoms were removed by mere leeching and stuping. It is difficult to believe that a luxation of the odontoid process without fracture could occur without death supervening, if we recollect that either the transverse ligament must be broken, or the point of the process must pass under that ligament, which cannot occur without laceration of both the moderator and perpendicular ligaments, and that, in either case, the process must directly press upon the medulla oblongata, on the slightest motion of the head forwards.

But although luxations of the odontoid process must be fatal from pressure on the medulla, fractures of that process are by no means necessarily so. No doubt most of these must be fatal, either from the fearful shock to the system caused by such an amount of violence as is required to break that bone, or from the extravasation of blood on the medulla; but should the patient escape those dangers, there is no necessity for him to die of pressure of either of the fragments on the cord: in fact, the apex will be kept *in situ* by the moderator and transverse ligaments, whilst the base is retained by the powerful *apparatus ligamentosus colli*. In experiments on this subject, having first cut across the odontoid process with a fine saw, without injuring the ligaments, in attempting to force the spine forcibly forwards, I found that the bones themselves gave way before any considerable amount of pressure was made on the medulla by the body of the axis, owing to the great strength of this ligament.

Malgaigne has collected three cases of this fracture of the odontoid with luxation of the atlas; in one, the patient lived seventeen days; in the second, he lived for one month and six days; and, in the third, he lived for four months.

Whilst a still more interesting case is given by Dr. Parker, of New York, where the patient walked about on the fifth day after the accident; on the ninth day resumed ordinary occupations; continued at his work notwithstanding constant pain in the head and neck, for five months, when he suddenly became paralyzed and died; yet the odontoid process was broken off, and its lower extremity was pressing on the cord at the time of his death.

This specimen proves, not only that a patient may live for months but for many years, as there can be little doubt that the accident happened in very early life. Indeed, that it occurred before the union of the epiphysis was consolidated to the body of the bone is rendered extremely probable, by the anchylosis of its apex to the occiput, as it is well known that the point of that process is the last part ossified, and would, therefore, be more likely to become adherent at that time than after the process of ossification had been completed. The alteration in the shape of the anterior ring of the atlas, and the smoothness of the surfaces of the occipital condyles, where the moderator ligaments were attached, would lead to a similar conclusion.

In order to produce the accident, the neck must have been first violently twisted, so as to tear away the moderator ligaments, and then the neck must have been flexed backwards or forwards to break the odontoid process. The only practical deduction to be drawn from these cases is the necessity that perfect rest should be observed, and that a long time should elapse before a patient, who has received an obscure injury of the cervical region, should be permitted to support the weight of the head on the spine. Had Dr. Parker's case submitted to restraint, it is quite possible the broken bone might have united, and the patient lived as long as in the present case.—*Dublin Med. Press*, February 18, 1863.

**34. Foreign Bodies in the Ear.**—DR. VOLTOLINI says that the first thing we have to do is to assure ourselves that a foreign body really is within the ear, for it by no means rarely happens that persons apply under the belief that an insect or other body is within the ear, which the most exact inspection fails to discover. In some cases, inflammation of the *membrana tympani* is the cause of the deceptive sensation, and this becomes aggravated by the unsuccessful

<sup>1</sup> This ligament is so strong that it has been divided into three layers by Dr. Humphrey in his excellent work "On the Bones."

searching for the foreign body. On the other hand, persons sometimes have foreign bodies in the ear without being the least aware of it. The author removed a rolled-up, hairy leaf from the bottom of the meatus, in the case of a lady, who had not the slightest idea how it came there, and who consulted him for deafness of the other ear. In another case, a hexangular glass bead was removed, the patient being entirely ignorant that she had any foreign body in the ear. We should always make a very careful examination, and, when possible, by aid of the direct rays of the sun. No artificial or reflected light is a substitute for this; but where it is not attainable, Dr. Voltolini employs an apparatus of his own invention, which is also serviceable in laryngoscopy. The simplest means of all, however, is to fasten a wax taper to the handle of a bright spoon in such a manner that the flame exactly reaches to the bowl of the spoon. Taking the spoon by its handle, and holding the light against the ear, by looking over it we are not dazzled, and can explore at our leisure. While in some cases the symptoms caused by foreign bodies in the ear are of a frightful intensity, in others they are wholly insignificant, and do not attract attention to the seat of mischief. For want of due examination of the ear, many patients complaining of giddiness, stupor, singing in the ears, &c., are sent to Carlsbad, Kissingen, or the sea-side, when all the mischief is due to a foreign body in the ear. Distant organs of the body may exhibit more or less considerable symptoms without, in some instances, the foreign body in the ear giving rise to any peculiar sensation, so that its presence remains unsuspected.

For the removal of foreign bodies we should first employ only the gentlest means, such as syringing the ear with warm water; and by this substances of the most different form and composition—even lead-pencil—may be removed. Beyond a bent forceps, an ear-scoop with a long handle, and a small corkscrew, almost all the instruments recommended for this purpose are more or less toys, or dangerous. By means of the corkscrew, wadding and similar soft substances may be easily drawn out; and in many cases we can remove bodies by passing the ear-scoop behind them. We should never employ force, and never should pass any instrument a line farther into the meatus than we can follow it with the eye. For want of such precaution, many a patient has lost his life or his hearing. The first effect of rough procedures is to make matters more obscure, the bleeding and swelling which ensue rendering complete inspection impossible. If the gentlest endeavours (or syringing), during which the eye guides the hand, do not succeed, the body should be left at rest in the ear—aye, even were it a dagger's point; and strong as the expression seems, the author justifies it by reference to cases on record in which pointed bodies have remained for years in the ear with impunity. It is not meant to be said that bodies should in general be left in the ear, but that matters should not be made worse than they are by violent manipulations. Leaving the body in the ear, then, warm-water syringing and soft poultices are to be daily resorted to, until the ensuing supuration loosens it and gives it a new direction.—*Dublin Med. Press*, Jan. 27, 1864.

## OPHTHALMOLOGY.

35. *Exophthalmos from Abscess in an Infant.*—Prof. ARLT related an interesting case of this to the Vienna Medical Society. A child, 15 days old, was brought to his Dispensary, who, otherwise quite well, presented a remarkably large exophthalmos. The eye was forced out about half an inch forwards, and nearly to the same extent outwards, the lids being distended and œdematous, and the conjunctiva, cornea, and iris remaining in a normal condition. The exophthalmos first commenced appearing on the tenth day after birth, and within five days had reached this enormous size. Dr. Arlt, believing that no other diseased process would explain this rapid protrusion, considered that abscess must be its cause, and made an exploratory puncture beneath the internal rectus. A little blood was the sole result; but next day the child's condition getting worse, and

a large prominence appearing at the inner angle, an incision half an inch deep was made by a small bistoury between the ball of the eye and the lower eyelid, with the effect of discharging a spoonful of thick pus, and allowing the eyeball to be replaced. Dr. Arlt believed the abscess proceeded from the ethmoid bone. Neither he nor Professor Pitha had ever met with exophthalmos from abscess in a child, although familiar with this case in the adult.—*Med. Times and Gaz.*, Oct. 10, 1863, from *Wien Wochenblatt*, 1862, No. 18.

36. *Corneal Incisions made with Scissors, and their Application to Extraction of Cataract.* By O. BADER, Ophthalmic Assistant-Surgeon to Guy's Hospital.—It occasionally happens even to the best operators for cataract that, on account of a sudden movement of the patient's eye or head, or of some other untoward accident, while passing the cataract knife across the anterior chamber, the corneal section cannot be completed, and the cataract knife has to be withdrawn, and the section to be finished in some other way.

The object of making the corneal incision with scissors was therefore—(1) to ascertain whether a better control could be obtained over the movements of the eye during the operation; (2) whether corneal incisions thus made would heal well; (3) whether this mode of operating is applicable to cataracts complicated with morbid changes of the vitreous, etc. Details of a few cases are given, in which the complications existing with cataract might have influenced the healing of the section.

*Mode of Operating.*—The position of the patient, of the assistant, and of the operator are the same as in ordinary extraction. The eyelids are kept open by a spring speculum. An opening is made into the cornea either with a broad needle or with a cataract knife at the spot which would be selected for ordinary extraction. The opening should be large enough to give easy access to one blade of a blunt-pointed pair of iris or strabismus scissors. The aqueous humour is allowed to escape slowly. Then one blade of the scissors is passed through the small corneal incision into the anterior chamber, taking care to glide its point along the posterior surface of the cornea, and carrying on the incision with the scissors. The incision is most easily made outwards, and downwards, and in the transparent margin of the cornea. Three or four successive small incisions will suffice to make the corneal wound equal in size to one made in the ordinary method of extraction, though it is quite in the power of the operator to make the incision as long or short as he pleases. The blades of the scissors while making the successive small incisions should not be closed completely, but only up to the blunt point, the latter resting upon the inner surface of the cornea, so that a good control is obtained over the movements of the eye, while the scissor-blade need not be introduced repeatedly into the anterior chamber. The left eye is operated upon with the left hand; the right with the right.

*Instruments required.*—1. A spring speculum. This speculum keeps the eyelids open without pressing upon the eyeball, *i. e.*, without stretching the conjunctiva so as to impede the movements of the eye; it is made of thin silver wire, to avoid its weight inconveniencing the eye, and it can, by a peculiar contrivance, be opened to a desired extent, and is found very useful wherever—as, for instance, in glaucoma—any undue pressure upon the eye during operation might prove injurious. 2. Forceps for fixing the eyeball, as suggested by Mr. France. 3. A pair of bent, blunt-pointed iris scissors. 4. A curette and scoop.

*Number of Cases.*—Twenty-one eyes were operated upon in this way; 9 times the left, 3 times both, and 6 times the right eye. In several cases ordinary extraction was performed on the fellow eye. 4 times an upper, 6 times a lower, and in the remainder of cases an outer and lower corneal incision was made.

*Ages of the Patients.*—Four between 20 and 50; 11 between 50 and 70; and 3 between 70 and 90.

Vision was improved in all cases, 18 of the 21 eyes being able to read small type. Vision was tested with the spectacles which were supplied to the patients. One patient (a short, stout woman) was attacked by gangrene of one leg on the fifth day after the operation, but the section of the cornea healed well, and normal vision was obtained.—*Med. Times and Gazette*, Oct. 24, 1863.

37. *Production of Lenticular Cataract by the use of Ergot of Rye.*—By Dr. IGNAZ MEIER, of Kronstadt. The consequences of the chronic intoxication by ergot of rye produced by the continued use of impure cereals (ergotismus convulsivus and gangrænosus) are, as is well known, nervous diseases of various kinds, contractures, anæsthesia, and alterations of the sensitive organs. The author has observed that ergotism (raphania) is also the cause of cataract. In 1857 the disease prevailed in the southeastern part of Siebenbürgen, Austria, the uncommon wetness of the summer having produced a great frequency of ergotic rye. Two hundred and eighty-three individuals were attacked in six towns, ninety-eight of whom died. The symptoms of chronic intoxication were in the beginning gastric affections, loss of appetite, nausea, diarrhoea, or constipation, and after that a creeping sensation, and a kind of torpor of the limbs; finally cramps. Permanent contractions of the feet the author saw as the consequence of the latter. The pupils were generally dilated, the nails bluish, the skin yellowish or whitish, the temperature of the surface of the body low. The elimination of worms was not observed, nor the occurrence of abortion in pregnant women. The consecutive diseases were in those more seriously affected, typhus fever, vertigo, amblyopia, or even amaurosis, impairment of hearing, difficulty of speech, insanity or idiocy, epilepsy, periodic fits of laughter, and debility.

The inhabitants of the district live very poorly, and are much devoted to the abuse of alcohol. The majority of the patients were young. In one hundred and thirty-three cases the age was recorded, and it was found that twenty-five were from 1-10, thirty-one from 11-20, thirty-seven from 20-30, sixteen from 31-40, eleven from 41-50, nine from 51-60, four from 61-70 years. Death mostly occurred in younger individuals.

In the year following the epidemic the author was called on by a comparatively large number of individuals with cataract, and came to the conclusion, after careful inquiry, that cataract was frequently consecutive to ergotism. Of twenty-three persons affected, fifteen were females and eight males; three were from 10-20, seventeen from 20-30, and three from 50-60 years. The raphania had lasted in these cases from six weeks to three months. The prevailing symptom had been cramps. In fifteen cases, a headache, lasting for months, or even a year, and combined in some cases with vertigo and noises in the head, had followed the disease, and after it had subsided, or sometimes during its existence, the gradual loss of sight in one, and soon in the second eye, had taken place. The production of cataracts was always slow, and in all cases bilateral. The consistency of the diseased lens was found to be hard two, soft twelve, and semi-fluid nine times. Complications were not present; the optic nerve and retina seemed unaffected, and the operation had mostly a good result.

The author believes to have a right to assume that the cataracts were produced in consequence of the disturbances of nutrition of the crystalline body, caused by the chronic intoxication, or rather on the thereon depending changes in the nervous and vascular system. The symptoms produced by ergotine and the oil contained in the ergot of rye are, according to Professor Schroff (*Pharmacology*, Vienna, 1856, p. 548), nausea, dryness of the throat, loss of appetite, fulness, pain and stupor in the head, dilatation of the pupils, gastralgia, and enteralgia, and diminution in frequency of the pulse. It is rendered probable, the author states, in conclusion, by observations of a less recent date, that ergotine has a peculiar influence on the system of the ciliary nerves, and influences that way the nutrition of the lens, while on the other hand, the convulsive contractions of the eye-muscles, as they were frequently observed by the patients, may have caused a change in the nutrition of the lens, like the cataracts occurring after convulsions in young children. [?].—*Am. Journal of Ophthalmology.*



## MIDWIFERY.

38. *Effects of Secale Cornutum. administered 296 Times in 2000 Labours in Private Practice.*—Dr. JOHN W. BECK read the following paper before the Ulster Medical Society (Feb. 14, 1863):—

Having practised midwifery now for upwards of twenty-seven years, and having registered every case as it occurred for sixteen years and seven months of that period, I find that I have considerably above 2000 cases on my register. Case No. 1000 was delivered by me on the 3d day of August, 1855, and in these 1000 cases I have administered the secale 126 times. Case No. 2000 was delivered by me on the 16th day of July, 1862, less than seven years afterwards, and in this second 1000, I have administered the same drug 170 times; in all, 296 times in 2000 cases. Now, as I know positively that I administered the secale cornutum 296 times, in a practice extending over sixteen years and two months, I presume I was justified in assuming, as I did at our last meeting, that I had administered this agent "about 400 times" in a midwifery practice of upwards of twenty-seven years.

With regard to its effects on the mother—I have registered them in four degrees as follows: First, where it had apparently no effect at all. Second, where it had very little or very doubtful, if any effect. Third, where it had a decided effect, such as was expected and required. And lastly, where the effect was remarkably and perhaps unexpectedly rapid and energetic. Of the first, I find no effect in 15 cases; a very little or doubtful effect in 42; the good effects expected in 223; and an extraordinarily energetic action in 16 cases. Now, as these remarks were written down immediately after each case, I think they are much more to be depended on than any vague general impression, and the result appears very favourable to this drug when administered in appropriate cases.

I need not enter into the consideration of what constitutes an appropriate case for its use, but I may remark that it should never, under any circumstances, be given in the early stage of labour, before the os uteri is well opened, no matter what the pains may appear like. There are few things more annoying to the accoucheur than to be in attendance, for perhaps a day or two, on a patient who considers herself in labour, and who is continually urging him to do something for her; and moreover, bad as this is with a primipara, it is still worse and more embarrassing, when it occurs, as it sometimes will, with the mother of five or six children, who considers herself a judge of labour. In a case like this the os uteri may be little if at all dilated, and the process of dilatation may be so very slow as to be scarcely perceptible, although the pains may be very severe on the patient.

Now, in a case like this, secale should not be given (at this stage, at least), as it will be sure to disappoint you in any good effects you may expect from it, and this warning is the more necessary as it is just such a case as the young practitioner is tempted to give it in. I have given it under such circumstances myself several times, but never with any benefit or satisfaction; and this leads me to remark that perhaps the report of my register would not have been so favourable as it is had it contained a list of all the cases, "about 400," in which I administered it. I had the experience of about ten years of its use to guide me before I commenced this register; and this experience was valuable in enabling me to select the cases in which its use would be most appropriate; notwithstanding all this, however, I observe that in some of the cases where the effects are marked *nil*, the remark is made that it was administered *too soon*; so that I consider this a point worth insisting on. It seems to show that we do not always benefit as fully as we ought by our experience. On the other hand, however, I may remark, as illustrating the benefit of experience as a guide in the selection of cases proper for its administration, that of eight cases that were perforated in the 2000, in only three was secale tried; and these three occurred early in the first 1000. I may observe, as a further illustration of the same thing, that the proportion of cases in which it was necessary to use the forceps

after the secale, diminishes as the register advances, averaging less in the second 1000 than in the first.

If, on the contrary, the labour be in an advanced stage, the parts soft, moist, and cool, and there exist no great mechanical obstruction to the advance of the fœtus—in short, in any case where it may be desirable to increase the muscular action of the uterus, either before or after parturition—its use is clearly indicated. But where the uterus has already acted energetically and failed to do its work, it is clearly inadmissible, as administering it in this case would be like the overdriving of a tired horse, and mischief must ensue.

For post-partum hemorrhage I again repeat there is no remedy equal to it. The more I have used it, the more dependence I am inclined to place in its use. I have given it 41 times after the birth of the fœtus for hemorrhage, retained placenta (*though I always proceed to remove it by the hand*), or a known lax state of the uterine tissues, tending to hemorrhage, and I find the effects marked good in all these 41 cases. In making this assertion I do not ignore position, pressure, temperature, &c., but my subject is at present the action of secale, and not uterine hemorrhage.

With regard to the effects of the secale cornutum on the child. I have long since come to the conclusion that it has no injurious effect on the child as a poison, and the registry seems to me to confirm this opinion in a remarkable manner. In every case, except one, where the child is marked dead-born, or as having died shortly after birth, there is a perfectly sufficient reason to account for death without the necessity of falling back on the secale, and in this one case, though I am not perfectly satisfied as to the cause of its death, I by no means feel inclined to attribute it to the secale. There were twenty children at the full term, who were either born dead, or died shortly after birth, after the administration of the secale. Of these, eleven were delivered by the forceps and three perforated. This, I presume, is sufficient to account for these fourteen deaths without blaming the secale. Of the remaining six, one was putrid when born, another had been turned, the third was a case of placenta prævia, and the child died from hemorrhage, the fourth child was born with a rigid state of the voluntary muscles, and a kind of rigid catalepsy, but more like rigor mortis than anything else. The abdomen was enormously distended and tympanitic; it lived an hour, dying out quietly. The fifth child was very large, and the labour was very slow, consequently the pressure was very great and long continued. Twenty-six hours' severe pressure during labour is enough to account for the death of this child. It might have been saved by the forceps, but as a rule I don't use them while the child is making an advance at all. The sixth child, though born after a labour of thirty-five hours, still seemed to me, I must admit, unlike the previous one, to have suffered no pressure sufficient to produce its death. It lived, at least the heart beat, for half an hour, but all the means I could use were unsuccessful in producing even an attempt at respiration, still I am not inclined to attribute this death to any poisonous effect of the secale, as I have seen two children besides die out in a very similar manner where no secale had been used.

I shall now address myself to a question which has been raised here as to the connection there may be between a lax state of the uterine tissues as promoting or facilitating the absorption of putrid matter through the uterus and the production of puerperal fever; in other words, how far the administration of secale may, by promoting the contraction of the uterus, prevent the absorption of its putrid contents, on the absorption of which puerperal fever may be supposed to depend.

There are four deaths of mothers in these 296 cases. The first death occurred in a primipara, aged about 40 years, who was delivered by the forceps of a very large and extremely putrid child. She complained of nothing but prostration, gradually sank into a state of coma, and died in four days. I have no doubt this death was from putrid infection. How far the secale tended to prevent its occurrence I can't say. It is marked as having produced very little, if any, effect. The second death was from hemorrhage. It was a case of placenta prævia. I was called by a member of this Society to turn. I did so. She died on the twenty-seventh day after delivery. The third death was that of a patient with

inflammation of the bowels, who was delivered of a four months' foetus after eleven days' constipation, and died the next day from exhaustion. The fourth death was a primipara, delivered with great difficulty after a twenty hours' labour. The effect of the secale is marked "very good;" but I had evidently despaired of her being able to deliver herself, as the child was born while a messenger was away for the forceps. She died thirteen days afterwards of what is marked "putrid fever." These are all the cases of death, or puerperal fever, that occurred among the cases where secale was given. Whether the evidence educed from them may be *pro* or *con* I don't know, but you may take it *quantum valeat*.

There is just another point I would say a word or two on before concluding, and that is, the proper method of preserving and administering the secale itself. It is a drug the active properties of which are very easily destroyed by damp. It is also very liable to be attacked by an acarus or mite, particularly when damp. It should be procured in substance whole. I have no faith in its powder, or tincture, or extract, or anything else, but itself. After it is procured, it should be carefully dried, and put into a well-stoppered bottle, with a small piece of camphor. If this is done it will keep sound and active for a long time. The camphor seems to have the effect of preserving it from the attacks of the acarus. Again, a new parcel of the drug should never be placed in the bottle along with the old. What remains of the old stock should be taken out, the bottle well washed and dried, and your new lot, well dried over a stove, if possible, placed in it on the top of a little bit of camphor. I believe that it is from neglecting to preserve this valuable drug properly, or from prescribing some of its *fancy* preparations, that it so often disappoints the expectations of some practitioners as to cause them to lose faith in it. I have no hesitation in saying that if you can procure a sound lot of this drug, and preserve it in the way I have directed, you will be very seldom disappointed in its action if administered in the following manner, and I again repeat, *only in appropriate cases*. I know that latterly when it failed in my hands even once, and particularly if twice in succession, I was inclined to look for the cause in the bottle, and more than once found it then in the bad quality of the drug.

The way I administer the drug is as follows: I take two drachms, always fresh powdered as required, and boil it in eight or ten ounces of water for about five minutes. I administer this in three or four doses, *as hot as it can be swallowed*, with from twenty minutes to half an hour between each dose. Generally two or three doses are sufficient to produce all the effects required, sometimes one dose will do. If the first or second dose produces little or no effect, you will generally find the third or fourth will produce as little, and I don't believe it is even useful or necessary to go beyond this two-drachm dose, even when the first or second dose is thrown off, as it sometimes is. When it is thrown off, it is not because it is an emetic in the ordinary sense of that word, though it has been called one. It excites the uterine action, and this action (or rather the stretching of the os uteri caused by this action) excites or produces the emetic effects on the stomach, precisely as occurs in cases when no secale has been given. Some one relates the case of a married woman who always vomited while in coitu, and I had a patient myself whom I could make retch at pleasure by touching the os uteri with the tip of the finger, although she could give no explanation herself as to the cause of the retching, or as to why she retched, yet the result of the touch was invariable. I made the discovery accidentally while examining her by the *tactus eruditus*. I had an opportunity of ascertaining some year or two afterwards that the os uteri had lost this peculiar irritability. —*Dublin Med. Press*, June 17, 1863.

39. *Treatment of the Vomiting of Pregnancy*.—Prof. GUSTAV BRAUN, of Vienna, remarks that "the treatment of the vomiting of pregnancy is not always crowned with satisfactory results, as indeed the long list of the most various remedies recommended sufficiently proves. The heightened sensitiveness of the stomach renders necessary easily digestible food, such as cold roast poultry, venison, and underdone beef. Good results are generally obtained from the use of seltzer and other aerated waters, and mild or even drastic purgatives; but

the best effect is to be expected from bitter, tonic, antispasmodic remedies. Among these may be mentioned calamus, tincture of ipecacuanha, orange flower water, and assafoetida. Among drinks may be mentioned good old wines, champagne and coffee. Less favourable results are to be expected from opium, morphia, and castoreum. Hohl recommends, when the vomiting depends upon increased secretion of bile, and this is not occasioned by pressure on the liver, the use of bicarbonate of soda and tincture of nux vomica. Where there is inflammatory irritation of the cervix, Negrier thinks good is done by the application of leeches to the vaginal portion; and Bretonneau endeavoured to overcome spasmodic rigidity of the uterus by the application of belladonna ointment. Moriceau thought benefit was derived from the application of a large derivatory to the region of the stomach. Simpson speedily cured a severe case by inhalation of opium. Krause recommends that some lukewarm gruel or very weak green tea should be always kept in readiness, and that some cups of it should be taken quickly in order to provide material for the speedy evacuation of the stomach; he also found creasote combined with steel act very efficaciously.

Ferrand had a satisfactory result in a case of obstinate vomiting, where he employed moxas, and in another where he applied Vienna paste; in the second case, however, chloroform and iodine were also employed. In cases of the kind under consideration, Corvisart, Baudot, Gentles, and others recommend pepsine. They give ten grains of it once a day, or a teaspoonful of the liquor pepticus thrice daily, immediately before meals. Hensch recommends, when vomiting during pregnancy is very obstinate, the use of creasote. In three cases where other means had proved useless, he obtained a cure by means of it; in one case the vomiting ceased after the first dose, in another it was not checked for a month.

From the fear that from the continual vomiting a fatal result might occur, it has been proposed that abortion or premature labour should be artificially induced. Opinions are not unanimous as to the propriety of this proceeding. Cazeaux is opposed to it, because no special time can be fixed when the abortion should be brought about. Villeneuve is in favour of the induction of abortion when the life of the mother or child is seriously endangered. Busch considers abortion admissible in none but extreme cases. Hohl objects to the induction of abortion, because the most severe cases of vomiting very seldom end fatally. Churchill and Lee have by this means obtained very satisfactory results. C. Braun trusts to the expectant method, and recommends abortion only in cases where the life of the mother is seriously endangered.

In the few cases where vomiting depends upon retroversion of the pregnant uterus, it may, though having previously resisted all treatment, be speedily and permanently cured by replacing the womb in its normal position. This is proved by one of my cases, where obstinate vomiting accompanied anteversion of the pregnant uterus. The observation is so much the more interesting, as no case similar to it has been published. The subject was a woman, twenty-two years of age, of healthy parents, who had menstruated for the first time in her sixteenth year, and in whom menstruation had always observed the normal type. In December, 1862, menstruation ceased, and during this month the patient was in the enjoyment of perfect health. On the 1st of January, 1863, vomiting occurred, which ceased on the following day, but returned a few days afterwards, until, finally, on the 13th of March, it was so violent that she was induced to apply for medical advice. On her admission the patient was found to be of the middle height, her osseous system was slender, and her muscular development proportional. The body was emaciated, the surface of a yellowish-white colour. The breasts, over which the skin was moderately stretched, were firm; the nipples irregular and surrounded by an olive-coloured areola. There were no head symptoms; the thorax was long, of moderate breadth, and well arched; inspiration and expiration were natural. The sounds on auscultation and percussion of the chest were normal; on palpation the lower part of the belly was found distended, and above the symphysis pubis an indeterminately limited tumour was recognized, which could not be closely examined in consequence of the tension of the abdominal walls, but over which percussion was dull. On vaginal examination the opening of the vagina was found moderately

wide, the temperature of the canal was higher than natural, and the secretion from its mucous membrane increased. Through the anterior vaginal wall pressed a round firm tumour, which was movable with difficulty, and behind was continued in the vaginal portion, bent at an angle and directed towards the point of the coccyx. There was constipation, and the patient vomited ten or fifteen times daily, especially when fasting, a greenish mucus in no great quantity; there was no nausea, and the matter was discharged suddenly, as if by eructations. The pulse was normal; the patient only complained of occasional dizziness which lasted for one or two minutes, and which came on when she sat up in bed.

An absence of the other symptoms which accompany those diseases, of which vomiting is a symptom, such as acute or chronic gastric catarrh, perforating ulcer, carcinoma of the stomach, paratyphlitis, rendered the diagnosis easy, and the vomiting was accordingly referred to the flexed condition of the pregnant uterus.

Although it was probable, but not certain, that there was an absence of adhesions of the fundus to the posterior wall of the bladder, the prognosis was only doubtful, as when the uterus is replaced it too often again falls over; the prognosis regarding the cessation of the vomiting was dependent upon the greater or less facility of the reposition of the flexed uterus and its retention in its normal situation.

I therefore determined to endeavour to replace the flexed uterus. With this view the urinary bladder was emptied by means of an elastic catheter, and the rectum was cleared out, and as the patient's susceptibility was very inconsiderable, I decided to attempt the replacement of the organ without the help of chloroform. Two pillows were now introduced below the sacrum so as to elevate the pelvic region. The index and middle fingers of the left hand were introduced into the vagina, and pressure was made forwards and upwards. The fundus of the uterus immediately passed upwards, and could be clearly felt through the abdominal parietes. In order to prevent the uterus from falling backwards, the patient was directed to lie upon her face, a position which she kept pretty continuously for several days. The result was most satisfactory. The vomiting, which had occurred six times in the morning of the day when the replacement of the uterus was effected, at once ceased. The patient stated that she experienced instantaneous relief when the replacement of the uterus was effected, and under a nourishing diet she made a rapid and perfect recovery."—*Ed. Med. Journ.*, Feb. 1864, from *Wochenblatt der Zeitschrift der k. k. Gesel. der Aerzte in Wien*, Nos. 47 and 48, 1863.

## HYGIENE.

40. *Practicability of Arresting the Development of Epidemic Diseases by the Use of Anti-zymotic Agents.*—Dr. ROBINSON read a paper on this subject before one of the sections of the British Association for the Advancement of Science, at its meeting at New Castle.

The author commenced by referring to the circumstance of the analogy between many of the phenomena of fevers and other zymotic diseases, and the ordinary process of fermentation having been perceived and recognized by Hippocrates and the oldest writers on medicine. Their idea was that a poisonous ferment, existing in the atmosphere, entered the mass of blood and induced in it a series of changes, which gave rise to the excessive heat, and other peculiarities of that class of diseases—at the present time, this doctrine, modified by the discoveries of Liebig and other chemists, has been adopted by most physicians, and forms the basis of the classification of disease framed by Dr. Farr, and used by the Registrar-General. It thus supposes living germs to exist in the atmosphere, which, when introduced into the body, give rise to a specific and regular series of morbid actions, pursuing a definite course in a definite time, as in

smallpox—those germs being disclosed and multiplied, and producing others capable of reproducing in other bodies the same succession of changes—other lethologists have supposed that the atmospheric poison acts on the blood chemically, by giving rise to what may be termed catalytic actions—while the author is disposed to believe, from what he saw during the cholera epidemic in Newcastle in 1853, that some of these volatile organic matters in the atmosphere are capable of acting on the human body as direct poisons, and that this inanimate volatile poisonous matter also furnishes nutrition to the organic germs suspended in the air. After these preliminary remarks he proceeded to refer briefly to a number of scattered facts, which seemed to him to indicate the existence of a great principle, which might hereafter be found applicable to the prevention or mitigation of epidemic diseases by the direct use of substances capable of arresting the process of morbid fermentation. He mentioned the following facts as converging to this conclusion: 1. Antiseptic substances, ranging from simple innocuous matters, such as sugar, up to the powerful metallic poisons, such as corrosive sublimate, and forming a very numerous and diversified group, have long been known to be capable of arresting the putrefaction of animal and vegetable structures. 2. The same substances prevent the formation of fungi, as is seen in the use of solutions of metallic salts in the taxidermy in the prevention of dry rot, &c. 3. Many of those agents are also known to arrest at once the process of fermentation, as, for instance, sulphurous acid, and Emi and other chemists have observed under the microscope the rapid stoppage of the vitality of the yeast plant when a solution of arsenious acid was added to the fermenting liquor. 4. The formation of the fungus in and on the plant, which causes the vine disease, is prevented by applying sulphur to the affected vines. 5. In Cornwall it is believed that the arsenical fumes from the tin-calcining furnaces exercised an influence over the potato-plants in the neighbourhood, which preserved them from the disease then affecting other parts of the same county. [A statement to this effect, signed by Captain Charles Thomas, Sen., of Dolwath, and sixteen cottagers, was here read.] 6. It has been found that when a species of fermentation has taken place in the human stomach resulting in the development in large quantities of a minute organism (the *sarcina ventriculi*), this morbid action can be controlled and stopped by the direct anti-symptomatic influence of certain salts, such as sulphate of soda, in doses perfectly compatible with the patient's safety. 7. In different parts of the world, among different races, a belief has long existed that certain antiseptic substances, of which arsenic may be taken as the type, are capable of acting as antidotes or preservative and curative agencies against atmospheric and other poisons, and in some cases that popular belief has proved to be well-founded. The experience of the multitude discovered the value of arsenic as a cure for ague long before it was recognized as such by physicians. The arsenical fumes of certain works in Cornwall were stated by the late Dr. Paris to have stopped the ague, previously endemic there. More recently it has been stated that the arsenic eaters of Styria are peculiarly exempt from fevers and other epidemic diseases. And in India the natives have long used arsenic as an antidote for the poison of snakes. Dr. Robinson concluded by expressing a belief that these scattered observations were not only sufficient to justify and necessitate further inquiries in this direction, but seemed in themselves to shadow forth the outline of a great law which might at some future time be productive of immense benefit to mankind.—*Med. Times and Gaz.*, Sept. 26, 1863.

41. *Iodine as a Deodorizer and Disinfectant.*—Dr. B. W. RICHARDSON, at one of the recent meetings of the British Association for the Advancement of Science, at New Castle, made some remarks on this subject. He said: The iodine should be placed in a common chip-box, such as is employed by pharmacists, the lid of the box being replaced by a covering of "leno," or the iodine may be placed in the ornamental vases on the mantle-shelf of a room. The smell of iodine could thus be communicated to the air of an apartment, and air so purified was not only fresh and agreeable to the sense of smell, but any organic matters present in it were destroyed. In extreme cases the iodine should be placed on a dish or plate, and the heat of a candle being applied beneath,

the iodine was volatilized, and a room was quickly purified. Dr. Richardson said that in cases of smallpox a knowledge of the facts he had named was most valuable. In rooms occupied by sufferers from this painful disease, organic matters floated largely in the air, rendering the air most offensive. He (Dr. Richardson) had succeeded, in all cases, in rendering such air inodorous by the volatilization of iodine. He had also observed the singular fact that when the air was greatly charged with organic materials, the smell of the iodine was for a long time imperceptible, so that, in truth, the iodine method of purification was also a ready and practical test of the purity of an air. Dr. Richardson thought the iodine plan was quite as effective as the liberation of free ozone—it was, indeed, in principle the same, and was so simple that every person could employ it.—*Med. Times and Gaz.*, Sept. 26, 1863.

42. *Effects of Surat Cotton on the Health of Operatives in Mills.*—Mr. JESSE LEACH, of Lancashire, makes (*Lancet*, Dec. 5, 1863) the following interesting observations on this subject, which are well worth the attention of proprietors of cotton factories in this country.

“When viewing a sunbeam in the comparatively still atmosphere of a room, the air is seen filled with dust and short textile fibres. Placed in the same situation while the room floor is being swept, the sunbeam appears completely glutted with larger quantities of the same floating materials, causing an oppression of the chest and disposition to sneeze. What is manifestly revealed to us through the medium of a sunbeam in a private room more forcibly applies to the rooms of a cotton mill, where the short fibres and dirt of the staple material are effectually separated by the teeth of machinery revolving at a rapid speed.

“It is necessary to say a few words on the cotton staple to correctly estimate the amount of dust in different samples of cotton. Whatever name it bears, much loss is sustained during the processes of manufacture: the American the least; the East Indian or Surat the most. Twenty-five per cent. is an average loss during the manufacture of Surat. The greater amount of loss sustained the more damaging to the constitutions of the operatives employed. The higher the rooms of a mill and the better their ventilation, the more harmless to the health of the workers; the lower the rooms of a mill and the more imperfect their ventilation, the greater the amount and extent of bodily sufferings of the mill operatives. The following remarks more particularly apply to operatives working in low, narrow, ill-ventilated rooms, where Surat cotton is used.

“The first process the raw cotton undergoes is the mixing of one staple with another. Much dirt and dust is disengaged in this operation. The respiration is affected from the dust irritating the respiratory passages of the mixers, and coughing and sneezing are the frequent consequences, which disengage from the bronchial membrane a quantity of slaty-coloured expectoration, which, when placed under the microscope, is seen to consist of very fine short fibres of cotton in air-bubbles and mucus. The sneezing is occasioned by the same material irritating the olfactory nerves during nasal breathing. The arms and hands of mixers are not unfrequently affected with a cutaneous rash, much resembling nettle rash. This may partly arise from fine sand and short fibres of cotton destroying the epidermis, and irritating by their presence the true skin. Their complexion is pale and sickly. After passing from the mixers, the cotton passes through the hands of the willowers and scutchers. When ventilation is not assisted by ventilating chimneys of tin or wood, which take off more effectually the dense atmosphere with which these rooms are charged, the willowers and scutchers suffer in the same manner as the cotton mixers. From the immense velocity of the machines used, the revolutions being 1500 per minute, the quantity of short fibres of cotton set afloat in these rooms is very great. It would be difficult to recognize a man at twelve yards' distance, from the density of floating fibres, modified, of course, very much by a wet or dry day. The strippers, grinders, and card-room hands are engaged in the next process of cotton manufacture. They mostly suffer from a spasmodic cough, sore throat, expectoration of blood, pneumonia, and confirmed asthma, with oppression of the chest. Various expedients are resorted to to liberate the small cotton fibres by expectoration from the pulmonary air-cells: tobacco chewing, the use of gin,

and smoking out of the mill are very commonly habitual. The teetotalers use tea and coffee in lieu of these for the same purpose. A carder seldom lives in a card-room beyond forty years of age; many have to give up working much younger. Forty-five to fifty years are their average ages. The next room the cotton comes to is the drawing and roving room. Drawers and rovers suffer very little from the small floating cotton fibre. The tonsils are sometimes enlarged, and the pharynx and larynx much injected. They suffer so little inconvenience from these conditions that an ocular demonstration is necessary to convince one's self of their presence. There is comparatively much less floating short cotton fibres in these and the next rooms. The mule and throstle rooms are the next, where cotton assumes the cotton-thread. Their temperature is much higher, ranging from 75° to 90° Fahr. The light is freely admitted through numerous lofty windows. A high temperature and much light are requisite for the spinning of the cotton-thread. The hands in these rooms look pale and sickly; but are lively, cheerful, and active. They suffer much from facial tic and toothache, slight colds, and sore throat during cold and damp weather, probably arising from their sudden transition from the heated atmosphere in which they work to a raw cold one outside the mill on their way to and from their meals. The next class of workers are the packers occupied in the warehouses. They are generally very healthy, active, and much better looking. These rooms are of a moderate temperature, and very well ventilated, which account for the improved appearance and general health of the men employed therein.

"I have now passed through the general affections of operatives engaged in the various processes necessary to produce the cotton-thread from Surat cotton, and shown, as I trust, plainly that these affections arise in a great measure from the circumstance that Surat cotton has a much shorter fibre than any other kind of cotton; that its manufacture involves on an average twenty-five per cent. of loss to the spinners; that the teeth of the machines through which it has to be passed are of necessity set closer for the better working of it; and that the health of the operatives employed suffers much more, from its short fibres irritating the epithelial mucous surfaces of the air-passages during inspiration, whether nasal or vocal; and that the only remedy is more effectual ventilation in the mixing, scutching, carding, and drawing rooms. Beyond these rooms I have not observed a greater amount of suffering than from working any other class of cotton. Lastly, whatever principle of ventilation be adopted, the lightness and shortness of the fibre of Surat cotton are so remarkable that a much greater loss than twenty-five per cent. would be observable if increased ventilation be much applied; but this loss would be amply compensated for by a better quality of cotton-thread, bearing an increased marketable value. Many wealthy manufacturers, compelled to use Surat cotton since the cotton famine, have applied increased ventilation to free the mixing and scutching rooms from the additional dust attending its use, and have at considerable expense brought into use powerful fans, more elevated rooms, and other appliances; and in every instance the factory operatives enjoy comparative impunity from what remains of the floating dust. The use of better gins would free the raw cotton of Surat from much of its present dirt, and our East Indian authorities possess the power of enforcing them, which would enhance the value of the cotton, and confer an inestimable boon on the Lancashire hive of wealth and industry."

43. *Dangers of Slaughtering Diseased Cattle.*—Prof. JOHN GAMGEE, of Edinburgh, has published (*Lancet*, Feb. 13, 1864) the following important observations on this subject:—

"On the 22d of October, 1863, a bull was taken ill on a farm and in a county which I decline to name. My reasons for not mentioning the place are, that every effort has been made to keep the secret, as in a host of similar cases, and it will serve no purpose whatever to expose those who, in ignorance and in consequence of the lax state of our laws on this subject, acted as their neighbours would have done. A labourer on the farm, who had been formerly a butcher, volunteered to slaughter the sick bull, that its carcase might be saved for the butcher's stall. Unfortunately, the poor man had previously injured his hand with a spade, and he performed his task without due regard to the condition of



his wound. It is said that the bull was dying from pleuro-pneumonia, but others declare the disease was of too rapid a type to be the very prevalent lung complaint. Certain it is that four pigs died after eating part of the viscera of the bull, and two dogs nearly lost their lives in the same way.

"The bull was disposed of to a butcher for the sum of £5, and after this, not only was it seen that the pigs and dogs had been injured by eating the flesh, but the labourer suffered intense pain in his hand, was seized with severe febrile symptoms, and died on the fourth day after dressing the bull.

"I am favoured by a surgeon with the following report of the case:—

"I saw the man for the first time on the second day before his death. I then found a ragged wound, about an inch long, nearly dividing the tendon of the back of the second finger of the right hand. The edges of the wound, for about three-eighths of an inch all round, were very much swollen and dark-coloured; in fact, the wound looked like an opening made with a blunt instrument. The swelling was well defined; there was also severe cellular inflammation of the arm to the elbow, with the usual boggy feel all over, from the back of the hand upward. Fever and the usual symptoms of severe cellular inflammation prevailed, notwithstanding tonics and stimulants. The man sank rapidly (the fever having turned to typhoid), and died on the second morning after I saw him. He was much addicted to habits of intemperance."

"Many of the readers of the *Lancet* may suppose that this is a solitary case, or at all events a rare one. The usual question may be asked, Why should I, as a surgeon of so many years' experience, not have heard of or seen such cases? To my own knowledge, four other men have died, presenting symptoms such as the above, under similar circumstances and in the same county, during the last four years. Another man, a butcher, nearly lost his life, and the surgeon who attended him asked him what he had done with the diseased cattle he had dressed. This question was asked as the surgeon feared that the carcasses were at that time being cut up in the town where they had been slaughtered; but he was somewhat consoled by the usual reply, 'They've been sent to London.'

"During the past year the attention of a number of gentlemen has been directed to cases of serious illness and death in various parts of the country. A landed proprietor wrote me concerning an instance in East Lothian. An animal was slaughtered, packed in a basket, and sent either to Edinburgh or London. After the carcase had been dispatched, the pigs were taken ill, and several died; they had eaten of the animal's entrails. The man who dressed the bullock nearly lost his life, and only recovered after nearly losing his eyesight. Some liquid from the thorax was splashed against this man's face, and he suffered severely from inflammation of the face and trunk. His eyes were most seriously affected, and vision has only been restored in one.

"In the Edinburgh slaughter-houses similar accidents have been witnessed, though every effort is made to conceal the truth; and one case which occurred in 1863, was identical with the one that occurred in East Lothian. During the outbreak of malignant anthrax in Lincolnshire last autumn a shepherd scratched his arm whilst dressing a sheep, and he very nearly lost his life.

"It is now about fourteen years since I first began to agitate the question of cattle disease in relation to the public health. During that time I have reported outbreaks of anthrax and of splenic apoplexy, and have repeatedly drawn attention to the deaths amongst pigs, dogs, ferrets, &c., from eating the viscera of diseased cattle slaughtered. I have striven, as best I could, to specify the form of disease communicable to man, and which renders the flesh of such animals unwholesome; and my opinion, based on a very careful consideration of the whole subject, is, that the public health is materially affected by the wholesale slaughter of diseased animals as human food. Several years ago I declared that it was impossible that human beings were not frequently injured by the eating of the flesh of cattle that had died of splenic apoplexy in this country; and the reason why cases have not been published is, that the carcasses have been sent to large cities, where they would not be distinguished from the carcasses of perfectly healthy animals, and the evil results of eating the poisonous flesh could not be distinguished from any ordinary case of dysentery or

typhus. The best proof of defective observation on these subjects is afforded us by the trichinous disease, of which not a single fatal case has been recorded in this country, but many abroad. That the disease is often amongst us is certain, and the infant that died in Paisley last year, as the result of eating 'measly (?) pork,' undoubtedly, in my mind, succumbed to trichinous infection.

"Knowledge gathers slowly, and medical men must proceed with prudence in drawing inferences from cases observed; but I hold that they have hesitated too much and too long in raising their voices against the filthy and demoralizing practice of slaughtering diseased animals as human food. With a proper organization, I will engage to reduce the mortality in the London dairies from forty and fifty per cent. per annum to four and five. This would at once prevent the sale of several thousand diseased cows as human food in the metropolis alone. Would not such work be better worth paying for than inspection of markets? and is it not worthy of the strongest recommendation on the ground of economy, if not on that of saving human life? We 'strain at a gnat and swallow a camel' when we condemn the French for their vivisections, and allow our population to be cut down in thousands by painful and preventable diseases. On no ground can we defend the slaughter of diseased cattle, and medical officers of health need not wish to be fortified by evidence of cases of death in man from eating diseased meat in order to interfere vigorously with the traffic in diseased animals. That traffic is the most potent cause of disease in animals themselves, and unless checked our stockowners will suffer even more in the future than they have in the past. We cannot keep pace with the demand for meat, and prices are ruling higher every year. To secure an adequate supply of wholesome animal food we must devote ourselves to the prevention of disease amongst animals, and no greater blunder was ever committed than that of declaring that our poor must starve if we condemn all the diseased animals sent to the butcher. The poor may console themselves a little by the reflection that it is the finest cattle in the best condition that usually die of splenic apoplexy, and the accidents which befell the pigs and ferrets from this cause are more likely to be witnessed in the homes of the wealthy than in those of people who cannot afford to pay the highest market price for beef."

#### MEDICAL JURISPRUDENCE AND TOXICOLOGY.

44. *Etherization followed by Death.*—At the meeting of the Imperial Society of Medicine in Lyons, on July 20, M. CHASSAGNY communicated the case of a lady aged 40, to whom ether was administered previously to the removal of an urethral polypus and two sebaceous cystic tumours on the head. Thirty *grammes* of ether (rather less than an apothecary's ounce) were used; but the anæsthesia produced was incomplete, and the patient was aware that the operations were being performed. The administration of the anæsthetic was not pushed further, because the stage of excitement did not manifest itself, and because, on the contrary, general coldness and slowness of the pulse were present. On the completion of the operation, which occupied a quarter of an hour, vomiting set in; the coldness increased, and was accompanied by clammy sweats; and the patient had convulsions, attended with foaming at the mouth. The attack passed away in a few moments, but soon returned with equal intensity. After the fourth attack, the patient died. M. Chassagny considered that the patient had died of eclampsia induced by etherization, which was thus the indirect cause of death. She had previously been subject to epileptic vertigo.—*British Med. Journ.*, from *Gaz. Méd. de Lyon*, 16 October, 1864.

## AMERICAN INTELLIGENCE.

## ORIGINAL COMMUNICATIONS.

*Ligature of the Femoral Artery.* By PHILIP S. WALES, M. D., Surgeon U. S. N.

James O'Neal, aged 30, born in England, was sent to the hospital March 28th, 1863, with a gunshot wound of the left thigh, received under the following circumstances. He was one of the crew of the prize steamer "Nicholas the First." When our men boarded her this individual, drunk, it appears, seized a keg of powder and rushed towards the furnaces to throw it in; providentially an officer saw him before the horrible deed could be executed, and brought him to the deck with his revolver. The ball entered the left thigh at its inner aspect at the junction of the middle and lower thirds, taking a slightly oblique course downwards and outwards, passed behind the femur through the limb, and emerged at the outer side. At the time there was a profuse arterial hemorrhage, which the medical officers who first saw him controlled with a tourniquet. Ten days elapsed before he arrived at the hospital. In the mean time an enormous diffused traumatic aneurism had developed itself, occupying the lower two-thirds of the thigh, and its pulsation could be felt everywhere over this portion of the limb, except a narrow strip of surface extending along its outer side. The patient complained of slight pain; but what gave him most concern was the great sensation of weakness which, he said, annoyed him more than anything else. The aneurismal bruit was distinctly marked and heard immediately after the impulse is felt.

*April 2.* We performed the operation of ligature of the femoral in its upper third, being kindly assisted by Surgeon Sharp and Assistant Surgeons Burnett and Winslow, to all of whom I am particularly obliged for the valuable assistance rendered in this difficult case.

From the enormous swelling of the limb from the knee to the groin there were no guides to the artery, and the depth at which we expected to find it induced us to make an ample incision (3½ inches) in its supposed course; soon its pulsation was felt leading directly to the sheath, which was slit up upon the grooved director about half an inch, giving vent to about a drachm of dark blood; the artery needle, armed with a waxed thread, was then at once passed around it from within outwards. The thread was knotted and all pulsation ceased in the tumour; the edges of the wound were then slightly brought together by compresses and bandages, and cold water dressings applied. After being made comfortable in bed, the patient soon rallied from the immediate effects of the anæsthetic—chloroform—and fell in a quiet sleep from which he awoke several hours afterwards much refreshed, and expressing himself as feeling free from any uneasiness in the limb.

*3d.* This morning the patient feels very comfortable, having obtained a good night's rest from a full dose of solution of sulphate of morphia. The temperature of the left leg is good, the femoral of the groin pulsates slightly

—69 a minute. Has not that annoying sensation of weakness before complained of, and there is less tumefaction of the thigh.

4th. Doing well. Took another dose of morphia yesterday evening, producing a good sleep during the night; complains of slight pain in the leg; wound of operation suppurating slightly; slight pulsation in the tumour can be felt when the hand is pressed forcibly against it. Continued water dressing.

5th. Decidedly cheerful and improving; bowels have been moved freely, and his appetite, which since he was shot has been entirely absent, begins to improve; he says he wants something to eat; a trifling pain shoots from his foot towards the point of ligation. Wound discharging freely. Continue same dressings, and give chicken soup.

6th. Now sleeps well at night without an opiate; bowels regular, appetite improving, and is entirely free from pain in the limb. All pulsation has disappeared from the limb. Continued dressings and diet as usual.

7th. Has had severe pain in the left ankle since morning. Continued same means.

8th. Changed the position of the limb, removing all pressure from the outer malleolus with entire relief to the pain. A distinct pulsation can be felt in the posterior tibial artery to-day. Wound still suppurating. Continue means in all respects as yesterday.

9th. Doing well. Complains of some uneasiness in the limb, which I suspect results from the restrained position in which it is kept.

11th. Has continued to improve; the upper part of the incision has healed from the bottom almost to the surface, with slight discharge of pus, and the limb nearly regained its normal size.

19th. Wound nearly all healed, ligation still firm; very slight discharge of pus; appetite good, bowels regular. From the great diminution in the original size of the thigh, the part where the aneurism was situated conveys the sensation of great solidity, and is about the same diameter as the upper part of the thigh.

May 1. The ligature came away to-day, and there has been a gradual improvement in the condition of the patient; his general health good, and all the functions going on normally.

30th. Was discharged from the hospital cured, and sent to the guard ship for safe keeping, to be disposed of by the naval authorities.

*Poisoning from the Datura Stramonium in which Recovery followed the Use of Opium.* By A. PAUL TURNER, M. D., one of the Physicians to the Howard Hospital.

Chas. McK—, aged 10 years, and his brother aged 8, both bright and active children, enjoying the best of health, left their home at 10½ A.M., in company with several children younger than themselves, upon an excursion to some vacant lots situated at the distance of over a mile from their place of residence, from whence they returned about 3 P.M., and asked for their dinner as if nothing unusual had occurred. While eating, the mother observed a peculiar uneasiness and a tendency to wander from the subject upon which they were being questioned, and she asked their comrades if they had not been using intoxicating spirits; but were stoutly assured that such was not the case. The two children were then unable to walk, which so alarmed those about that the family physician was sent for. After waiting for him over half an hour, the symptoms becoming more alarming, I was summoned, and reached the house at 4.30 P. M. I found

the children lying upon their backs, their eyelids slightly drooping, corneæ very bright, pupils widely dilated and insensible to the light; conjunctiva injected; face deeply suffused and of a dark crimson colour; an apparent difficulty in breathing; inability to articulate, and in a state of complete insensibility, broken occasionally by a paroxysm, during which they would utter some indistinct sounds and throw the hands about the head as if attempting to ward off some threatening evil; this would soon subside into a semi-comatose state, not the stupidity, however, which results from opium or its preparations, but rather a state of intense apathy, which persisted for a few seconds, when the delirium would again recur unless sooner produced by the efforts of those about to render assistance, when the state of excitement assumed such a form and violence as to render necessary a certain amount of restraint to prevent escape from the imaginary object which engaged the attention; occasionally they would grasp at something in the space in front, appear as if he possessed or rejected it, then turn the head as if called by a voice beside them and attempt to speak to it, the sound resembling a squeak more than the natural tone of voice. Neither of them was able to support himself alone upon his feet, but would take a step or two with a staggering gait, falling to the floor as if intoxicated or in a state of complete exhaustion. During the period of excitement the extremities were in constant motion, co-ordinate only so far as they related to the corresponding limb, yet wanting in that harmony of action which is found in those movements of a higher order, as standing in the erect posture, walking, etc. etc.; there was constant action of the fingers as if attempting to pick something from the person or the bedclothes; at times they would burst into a paroxysm of excessive laughter, which would persist some seconds, then suddenly cease; at times they would have a smile so quiet and pleasant that we could not but contrast it with the highly excited state previously witnessed. The flushed face; the bright eye; dilated pupil, and the peculiar mental state, led me to instantly surmise that the poison was of the order Solanaceæ, and on closely interrogating those who accompanied them, some unripe capsules of the *Datura stramonium* were produced, with the assurance that all had eaten of the seed which was beginning to assume the brown colour of maturity, and that the two children now so violently affected, had first found them palatable, and not only began to use them first, but even ate them while returning home. It may not be out of place here to mention that in this half-ripe state, the seed do not give the decided taste of the more mature growth, and are not so unpalatable as to cause children to refuse them.

To each was administered an emetic of sulphate of zinc gr. v, and pul. ipecac. gr. x, in the hope that the remains of any unabsorbed material in the stomach might be removed; their jaws being closed, and as they could not be made to comprehend our object, there was no little difficulty in causing them to swallow. Emesis in a short time followed, and among the remains of the undigested food eaten a little while before was found a quantity of the seed, which probably amounted to as much as half a drachm. As there could now be no doubt as to the nature of the article used, cold water effusions were employed, hoping to induce reaction against the tendency to depression of the vital powers by the poison. Having seen reports of cases wherein opium or some of its compounds had been used with the happiest results in counteracting the effects of belladonna, and from the similarity of the action of stramonium and that of

other species of the same order, it at once occurred that opium might not be inappropriate in the present instance, and accordingly to each of the two children was given tinct. opii gtt. vij.

5.15 P. M. I was now joined by Dr. J. H. Slack, who advised a repetition of the emetic of sulphate of zinc, which was administered without immediate result, and the tinct. of opium was again given to each in the same quantity. Twenty minutes later no marked effect having followed the laudanum, another dose of ten drops was given; they are now lying more quiet; dilatation and immobility of the pupils; general appearance unchanged; still insensible, and even when loudly spoken to the eyes would scarcely be turned towards the speaker; still continue to pick at the bedclothes and grasp at the imaginary objects about them, suddenly move as if spoken to and apparently attempt to articulate some reply, the limbs being at the same time actively moved, not spasmodically, however, but as if attempting to perform some action which failed for want of a proper guiding influence.

6 P. M. They appear to lie more quiet now, and the iris, which is taken as the index by which the relative effects of the two substances are to be estimated, still remains dilated and uninfluenced when exposed to the action of the light; are not so frequently excited, though at times laugh immoderately; surface of the body continues very red, though less so than a short time previously. Tinct. opii gtt. v repeated to each; directions were given that the children be allowed to remain on the floor, the clothing to be removed or loosened so much as to permit free circulation and unimpeded movements of respiration.

9 P. M. Both children are held in a sitting posture upon the knee of an attendant, whose attention is fully directed towards preventing them from falling during the periods of excitement, which are less violent and appear to be more in the direction of intelligence. The skin remains as from the beginning, somewhat relaxed though not moist, and very slightly elevated in temperature; pulse 95, compressible and full in volume, and has varied but little from this since the commencement of the symptoms, even during the paroxysmal state, and is then to be attributed, perhaps, to the muscular movements rather than direct action upon the heart of the substance whose effects we are endeavouring to counteract. It is now seen that the pupils are less dilated, though very slightly influenced by the light; the children are able to articulate, but cannot be made to comprehend questions proposed them, and occasionally laugh or attempt to sing; on the whole, their condition may be said to be much improved, but as the effects of the datura are yet so prominent five drops more of the opiate are ordered, with directions that the same quantity be again repeated in 30 minutes.

Wednesday, 9 A. M. The youngest child was now quietly sleeping, but could be awakened without difficulty. During the night ten drops more of the laudanum had been given to each; the eldest was quietly lying upon the bed; pupils more contracted than when last seen, and became more so when exposed to a strong light; skin moist and cool; has lost that efflorescent appearance which was before so strongly apparent; pulse 86; respiration normal; responds yes and no to necessary inquiries, but does not complain or attempt to converse; is wholly uninterested in all that passes about him, and as he lies on his side smiles as if amused at some ludicrous idea passing in the mind; at intervals has slept during the night, though frequently disturbed by illusions. As the symptoms of the stramonium were now so little preponderant as to give no uneasiness as to

the immediate result, all medicinal interference was laid aside, and rest in a darkened room with perfect quiet was enjoined for the day.

6 P. M. Much improved since last visit; pupils nearly normal in diameter, but not quite as susceptible to light as desired; complaints of slight dryness of the fauces; some vertigo with occasional delirium through the day; and the eldest, when asked in reference to his thoughts, replied that he felt as if dreaming, though not asleep. When seen the next day there had been a free evacuation of the bowels with much apparent benefit; they were playing about the door without the least abnormal symptom; conversed with freedom, and were perfectly rational.

Though the above details refer to but two cases, yet there were five others, younger, who had partaken of the seed, and in whom dilatation and immobility of the pupils was so manifest that emesis was induced in each, and they were kept under close observation for any signs which might demand attention, but as vomiting had been so early produced, nothing of the kind occurred.

When we consider the violence of the symptoms, the rapidity with which they became evident, and the quantity of opium used in a few hours, we cannot but help drawing the inference that there must have existed some antagonism between the two.

---

#### DOMESTIC SUMMARY.

*Lithotomy in Young Persons.*—Dr. J. MASON WARREN has communicated to the Boston Society for Medical Improvement two cases of the lithotomy in young persons, with some interesting remarks on operations for stone in the bladder.

In the first case the ordinary bilateral operation was performed, in the second some novel procedures were adopted, and we therefore subjoin Dr. W.'s account of it.

Jacob Banks, æt. 13, entered the Massachusetts General Hospital in March, 1863, on account of great suffering in the region of the bladder, accompanied by incontinence of urine. Two years before, he noticed an occasional difficulty in passing water; at times a sudden stoppage of the stream occurred, and the urine was now and then a little bloody. Of late the symptoms had become more urgent and the pain constant, so as to confine him to his bed. At this time the urine dribbled away, and the skin of the penis, scrotum and thighs had become red and irritated by it. The prepuce, as in the last case, was much elongated.

On introducing a sound, the instrument encountered much resistance at the neck of the bladder, and at once came in contact with a stone. The bladder was quite empty of urine, and the calculus meeting the sound at different points, while enveloped in the mucous folds, gave the impression of the existence of two or more stones.

It was decided to perform lithotomy, first relieving the external irritation by cleanliness and suitable dressings, and then evacuating the bowels by a dose of castor oil, followed by an enema, on the morning fixed for the operation.

The operation which was performed combined some of the more important features both of the median and bi-lateral methods, and seems to offer some advantages over either. A sound of medium size was passed into the bladder, the meatus urinarius, which had become very much contracted, being first slightly enlarged by the knife. The skin was then divided in the median raphe, and the dissection continued in the same line until the membranous part of the urethra was exposed. This was next opened, and the attempt made to introduce the double "lithotome caché" of Dupuytren. Owing to the unyielding

condition of the neck of the bladder, the lithotome could not readily be passed in; a probe-pointed bistoury was therefore substituted for it, and the prostate divided on both sides. The finger now entered with ease, and a large stone was felt very high up in the bladder. Attempts were made to extract it with a long pair of polypus forceps, and then with the ordinary lithotomy forceps, but without success, owing to the great size of the stone; the cut in the prostate was therefore enlarged, and the attempts at extraction renewed, but still unsuccessfully. As it was not deemed safe to enlarge the incision in the prostate further with the knife, the two forefingers were introduced, back to back, and the substance of the gland slightly torn. A larger pair of forceps was then passed in, and by embracing the whole stone within its jaws it was extracted without further difficulty. A bit of catheter was placed in the wound, and the patient sent back to bed.

On the ninth day the urine began to pass through the urethra, and from the twelfth day none escaped by the wound. At the end of three weeks the patient was discharged, with the external wound nearly healed, and free from all symptoms of stone.

The calculus, which appeared to be composed of the triple phosphate of magnesia and ammonia, was large and very rough; it measured three and a half inches in its longest circumference, and two and three-quarters in the shortest; its weight was half an ounce.

Dr. W. said that he was led to perform the operation in the manner related, viz., by making an incision through the skin in the median raphe, instead of the cross cut, employed by Dupuytren, from having observed how easily these parts could be dilated in the incisions practised in perineal section for the division of strictures, in some cases impassable by the smallest sound. In these cases, after cutting through a deep perineum filled with inflammatory exudation, it is often found necessary to exercise much patience and to spend much time in tracing the urethra beyond the stricture. Having had occasion, during the past few years, to do a number of these operations, most of them entirely without any guide, he was led to the reflection that it would be very easy in this way to perform the operation of lithotomy when the operator is guided by the presence of a large staff in the urethra. When the operation by this median section is performed deliberately, the operator has the parts divided freely open to the view, which is not the case in Dupuytren's operation, which has to be performed mainly by the sense of touch. By this method, also, the vessels are much less likely to be wounded than in the common operation. Although different kinds of operations must of necessity be practised to suit different cases, the present method would seem to be the most direct and natural one for arriving at the bladder. Since performing it, Dr. W. said he had found that a similar operation had been suggested by Mr. Erichsen, who had not, however, performed it upon the living subject. Mr. Allarton's and Mr. Beaumont's operations, although done in the median line, are essentially different.

Dr. W. stated that he had now operated upon about thirty cases of stone in the bladder, and thus far had been so fortunate as not to lose a single patient. Most of the operations had been done by the crushing method, which he had found applicable to all cases except in very young persons; the oxalate of lime, or "mulberry calculus," when in an adult patient, and of a moderate size, not being an objection on account of its hardness. In young subjects, on account of the small size of the urethra, the danger of its obstruction by fragments, and the comparative safety of lithotomy, he had generally performed lithotomy by the bi-lateral section, and the recoveries, without exception, have been safe and speedy.—*Boston Med. and Surg. Journ.*, March 10, 1864.

*Ligature of the Common Carotid.*—Prof. C. A. PORE, of St. Louis, records (*St. Louis Med. and Surg. Journ.*, January, and February, 1864) the following interesting case of this:—

"The late General Bayard, who was killed at the battle of Fredericksburg, received an arrow-shot wound in the left upper jaw, on the 11th July, 1860, whilst a lieutenant in New Mexico, in a skirmish with the Indians. The iron, point, spear shaped, and two and a half inches long, with a small neck for the



attachment of the wooden shaft, was driven with force, entering a little below the middle of the orbit, and with a slight obliquity backward. The surgeon of the post immediately endeavoured to extract the foreign body. At first it was hoped that this might be accomplished by traction upon the arrow itself, but this was thereby only separated from the iron point, which remained firmly impacted in the bone. Different forceps were then resorted to, and after a trial of two hours the effort was abandoned.

"The absence of suitable instruments, the slight hold which could be obtained on the offending body, as the small neck was all that could be seized, and above all the firm impaction, sufficiently account for the failure of extraction. Slight hemorrhages from the corresponding nostril followed within the subsequent four weeks, and on arriving at St. Joseph, a more serious one occurred.

"The patient reached St. Louis five weeks after the reception of his wound. There was some tumefaction of the left side of his face. The wound at the time had skinned over, so that no foreign substance could be seen, but on gentle pressure with the finger, a hard point was perceptible beneath the integument. There was a muco-purulent discharge still issuing from the nostril, proceeding doubtless from the antrum. On incising the imperfect cicatrix, I felt the projecting neck, and supposing that the arrow point, after so long a time, might be somewhat loosened by the efforts of the organism, I attempted its extraction with the dressing forceps of the pocket case, but found them wholly inadequate. I at once supplied myself with instruments of various kinds, and with a powerful forceps succeeded in one or two efforts in extracting the offending body. This was followed by a troublesome bleeding, both from the nostril and the external wound. By rest, opium, cold, plugging and pressure, this was duly arrested. Several slighter hemorrhages subsequently occurred, but they gave rise to no uneasiness.

"The case now progressed favourably, and the patient was able to get about the streets. He walked to my office, and complained of some inability to separate the jaws, a difficulty, by the way, which had existed all along; I directed him to use gentle and gradual efforts at opening the mouth. In less than an hour his troubles recommenced. The whole cheek and jaw became hot, swollen, and painful. Fever, with renewed hemorrhage, set in, and caused me much anxiety. The same means of arrest first tried did not avail. Extensive extravasation of blood took place, and in order to relieve the pain, tension, and possible sloughing, I deemed it proper to make free counter openings, both in the mouth and on the cheek and neck. From these, large grumous clots were turned out, and through the inner opening the finger's point could be carried round the almost denuded bone, and lodged high up in the pterygoid fossa. The hemorrhage continuing with various and delusive intermissions, the case became critical. Finally, for three successive nights, these came on regularly at midnight, and were copious and exhaustive. From such repeated losses of blood, the patient had now become reduced to the lowest degree, when the farther issue of a few ounces more might have turned the scale against him. I then determined to tie the carotid. This was done on the night of the 16th of September, more than two months after the reception of the wound. Such was the extreme condition of the patient that he fainted during the operation, although in a recumbent position. The operation was a delicate and difficult one, as the parts were very much swollen and altered by sanguineous extravasation and inflammatory effusion, and the incision being correspondingly deep, the effect of artificial light in such cases, at all times bad, was only the worse—for whilst the surface of the wound was well lighted, the sharp, deep shadow rendered its depth almost invisible. The touch, therefore, superseded sight. There was no more hemorrhage. Opium and nutritious ingesta were freely given, and the patient continued to do well. From the thoroughly anæmic state, and the effects of interruption of the cerebral circulation, caused by the ligature, the patient's mind was somewhat impaired, and I feared some altered nutrition or softening of the brain. These symptoms, however, gradually yielded, and after several weeks he was again up and about. Being rather impatient and self-willed, he went out before I deemed it prudent for him to do so. The ligature was slow in coming away, and for some weeks after its fall, a small fistulous opening re-

mained. The lieutenant now left St. Louis for West Point, to which place he was assigned for duty. When on a visit to his family in New Jersey, and traveling by railroad at night between New York and Philadelphia, after much bodily fatigue, a further hemorrhage occurred from the still unclosed fistula of the cervical wound. By rest and moderate pressure this was relieved. This bleeding was the last—the wound healed and the patient recovered his usual health. There always remained, however, an unpleasant fulness of the affected cheek and masseteric portion of the face."

*Treatment of Gunshot and Penetrating Wounds of Chest and Abdomen by Hermetically Sealing.*—B. HOWARD, M. D., Ass. Surg. U. S. A., advocates (*Amer. Med. Times*, vol. vii., No. 14) the treatment of gunshot wounds of the chest and abdomen by a plan which he calls "hermetically sealing." The following is his description of this mode of treatment:—

"All accessible foreign bodies having been removed, introduce the point of a sharp-pointed bistoury perpendicularly to the surface just beyond the contused portion, and, with a sawing motion, pare the entire circumference of the wound, converting it into a simple incised wound of an elliptical form. Dissect away all the injured parts down to the ribs, then bring the edges of the wound together with silver sutures, deeply inserted, at not more than a quarter of an inch apart; secure them by twisting the ends, which are then cut off short and turned down out of the way. Carefully dry the surface, and with a camel's-hair pencil apply a free coating of collodion over the wound; let it dry, and repeat it at discretion.

"For greater security, shreds of charpie may now be arranged crosswise over the wound, after the manner of warp and woof; saturate it with collodion, and when dry repeat the process, until the wound is securely cemented over. As a still greater protection, a dossil of lint may then be placed over the part and retained with adhesive straps.

"If there be a tendency to undue heat in the part, it may be kept down with cold affusion; should any loosening of the dressing occur, an additional coating of collodion may be applied. The sutures must not be removed until healing by first intention is complete.

"Should suppuration occur, so as to occasion distressing dyspnoea, proceed to treat it in all respects as a case of empyema, introducing the trocar at the most dependent point, and taking special care to avoid the admission of air."

Deputy Inspector-General T. LONGMORE, Professor of Military Surgery in the British Army Medical School at Netley, and one of the most experienced and learned military surgeons of the day, makes (*Lancet*, Jan. 2d, 1864) the following very interesting remarks on this mode of treatment:—

"In considering the proposed treatment, what first attracts notice is the absence of any limitations in its application, and the assumption that healing of the wound by the first intention can be secured in all such cases. It is the unqualified manner in which this plan of treatment is put forth that makes me think it important to notice it; for if put into practice as described, I feel certain it must lead not only to much disappointment, but occasionally do considerable harm. The wounds of the chest to which it is applied are simply designated 'penetrating wounds'; but it is obvious from Dr. Howard's remarks that he includes perforating wounds, and indeed all wounds in which the cavity of the chest is opened, by gunshot, with or without wound of the lung. As I have already explained, the variations which are constantly found in the accompanying circumstances of a number of wounds of the chest by gunshot involve corresponding variations in their degrees of gravity and probable issues. The difference between an ordinary penetrating wound by gunshot, and a perforating one, is immense; in the one case the projectile is probably lodged; in the other it has passed out. Again, in either a penetrating or a perforating wound most important differences arise in the nature of the injury and the effects of the treatment, according as the lung is penetrated or not; and serious differences also depend upon the part of the lung penetrated or traversed by the ball. All these circumstances should be noted and taken into account in estimating the value of a

special plan of treatment in a given number of cases. If a ball passes through or near the root of the lung, it is scarcely possible to prevent a fatal result by any plan of treatment; if the track of the ball has been limited to the periphery of the lung, and the constitution of the patient and opportunities of treatment be favourable, we have a right to expect a favourable cure in a considerable proportion of cases under the mode of treatment which has hitherto been in ordinary use of late years, and which I have already described to you.

"The surgeon's efforts to secure healing by the first intention in the way named in gunshot wounds will, I think, be attended with success in only a very small proportion of exceptional cases. It is the rule of practice among army surgeons to close completely, by sutures, compresses, adhesive plasters, and bandages, all wounds of the chest—such as incised and stabbing wounds—in which there is thought to be a probability of union by the first intention being obtained. Not only the relief to the breathing by rendering more complete inflation of the lungs practicable—which is the immediate effect of this operation in an incised wound of the soft parietes of the chest and periphery of the lung—but the arrest of the hemorrhage (if this complication exist), together with the prevention of subsequent extended pleuritis and pleuro-pneumonia, are sought to be obtained by these means. And as in many cases the urgent symptoms have gradually abated under this treatment, and eventually respiration in the wounded lung been re-established, it has been rendered evident that the wounds had become closed by the adhesive process. You will find such cases fully recorded in the works of Guthrie, Larry, Hennen, and others. But in treating cases of incised wounds we cannot rely upon obtaining healing by adhesion even of the external orifice, although this may be uncomplicated with injury to bone or cartilage; and we should be prepared to meet these abortive attempts by other definite plans of treatment. The restlessness of the patient, the natural movements of the chest in respiration, inflammatory action, cough, weakened health, habits of life, and special conditions of the tissues, may thwart our attempts to effect this object. When to these sources of failure we add continued hemorrhage at the seat of injury in the parietes, and torn cartilage or divided ribs—such frequent concomitants of these injuries—the difficulty of obtaining healing by the first intention is still further increased.

"When we leave incised wounds and approach those of penetrating gunshot wounds—at least those inflicted by projectiles as large as ordinary musket-balls—the probability of obtaining healing by the first intention seems to be altogether absent. Here not only all the ordinary sources of prevention of this desired result which I have just mentioned exists in an exaggerated degree, but, in addition, a rib, when struck, is not simply divided as by a sword, but is contused and splintered, and the soft parts around the opening made by the ball, for a distance varying according to the size and shape of the projectile, and its amount of momentum, are bruised, and their vitality and reparative tendency proportionably diminished. To remove this sphacelated surface and surrounding bruised structures by incision, and then to force the edges of this enlarged opening together by sutures (for it is to be remembered, even in cases where ribs and their cartilages have escaped, the intercostal muscular tissues and pleura—not merely the integument—are contused and torn), appears to involve the necessity of such a strain as would prevent all probability of cohesion by first intention, even if such further impediments as costal movements, sudden impulses by coughing, and symptoms of inflammation arising, were not in existence. Experience has hitherto taught that in these injuries provision must be allowed for the escape of sloughs and suppurative discharges from the parietal wounds—not to mention other circumstances; and that to pent them up by closed compresses is to thwart nature's plans of attempting cure, and to aggravate the evils which have been already inflicted. Hence the rule has arisen in all cases of *incised wounds* of the chest, whether hemorrhage be present or not, to close the wound by suture and compress as early as possible, and to seek for union by adhesion; but in *gunshot wounds*, not to close by suture, and only to make accurate closure a matter of necessity where they are accompanied by active hemorrhage.

"Baron Larry, in his memoirs of the Egyptian campaign, has given an excellent explanation of the manner in which the urgent symptoms of an incised wound of the lung with hemorrhage, when the hemorrhage arises wholly from the pulmonary vessels, are frequently caused to cease, if the wound in the chest be accurately closed. While the wound is open, the inspired air, finding a ready way of exit by the opening in the lung, constantly opposes the cohesion of the margins of this opening, at the same time that its escape in this way prevents the distension of the air-cells of the surrounding lung-structure, which would lessen the arterial flow, and accelerate the return of the blood by the pulmonic veins. When the wound in the chest has been accurately closed, after allowing the blood already effused in the pleura to escape through the opening by favourable position, the air introduced into the lung by breathing, not finding the same way of issue, fills more completely the small bronchial tubes and air-cells, facilitates the return of blood to the heart, causes the divided lung surfaces to approach each other, favours the construction of the orifices of the wounded vessels, and assists by these means, as a consequence, the adhesive process. But in the case of a contused and ragged canal being opened through the lung by a projectile passing into or through it, all the circumstances are manifestly changed: if bleeding is going on from its surface, neither the passage of the air through the wound in the chest-wall nor its restraint can exert influence upon it, for the track of the ball will remain patulous under all circumstances, so far as the act of respiration is concerned.

"Let me briefly consider the three advantages which Dr. Howard advocates for the hermetically sealing treatment in gunshot wounds. Dr. Howard states the causes of fatality in gunshot wounds of the lungs to be hemorrhage, dyspnoea, and suppuration; and that these may be restrained and modified, if not prevented or removed, by the simple operation already described.

"*Hemorrhage*, Dr. Howard rightly places first amongst the causes of fatality. It is the symptom which of all others alarms the surgeon; for he cannot but feel how much the power of nature to arrest the flow of blood, and how much the result of his own endeavours to aid nature in her efforts, must depend upon accidental circumstances connected with the course of the projectile and the injuries it has inflicted, which it is entirely out of his power to control. The track of the bullet is out of sight; the injury it has done to the lung is out of reach. It may be judged that vessels of the largest size have not been divided as it traversed the viscus, or death would have been nearly instantaneous; a surmise may even be made of the part of lung wounded by the situation of the aperture of entrance, or, if two openings exist, by a supposed line connecting them. But such surmises are often proved to be erroneous by post-mortem inspection: even the source of the hemorrhage, whether it be wholly pulmonic, or wholly parietal, or the two combined, cannot be diagnosed with certainty in these complicated wounds. It is not to be wondered at, then, that under such circumstances of doubt and consciousness of helplessness, surgeons, though recognizing the differences between a gunshot and an incised wound of a lung, should nevertheless, almost instinctively, stop the gap through which the life-blood of the patient is seen to be flowing. Although the surfaces of the wound in the lung cannot be brought into contact and coaptation, there is still the hope that as the blood accumulates within the pleura it may exert such a pressure upon the wounded lung, and, perhaps, to plug up the mouths of the open vessels, as to stay the flow of blood and procure time for the saving processes of nature and the application of remedial measures on the part of the surgeon that may lead to the recovery of the patient. And the most experienced army surgeons have long recommended this course under circumstances of gunshot wounds with *profuse hemorrhage*. 'Hermetically sealing,' thus applied, is only a new term: the practice is not new. Immediate closure of the wound is, at the present day, the general practice of all surgeons in such cases. The difference in the treatment between the practice of *closure* and *hermetically sealing* is, that in the one no attempt is made to obtain healing of the wound by the first intention, which it is not expected can be obtained in openings made

by gunshot; and, secondly, that the continuation of the closure is made subject to other contingencies which are not unlikely to follow the injury. It frequently happens in such cases that the flow of blood, after the closure, is not arrested until the accumulation on the wounded side is so great that the pressure exerted upon the heart and sound lung is strong enough to threaten death from asphyxia. It is manifest under such circumstances that the wound cannot be kept hermetically sealed; it must be reopened, some of the effused blood allowed to escape, and there still remains the hope that the weakened state of the circulation, and the usual condition consequent on loss of much blood, with the aid of proper remedial measures, may favour the prevention of further hemorrhage. If we persist, under these circumstances, in maintaining the hermetically sealing of the chest—if Dr. Howard's injunction that the sutures are not to be removed until healing by the first intention is complete is attempted to be carried out—I fear the risk will be run of causing the death of the patient by suffocation.

"*Dyspnoea* is a symptom which may depend on several causes. It may be induced by the very circumstances I have just described, after closure of the wound—viz., continued hemorrhage and accumulation of blood in the cavity of the chest, and sealing will not then afford relief: if it depend upon the interference with natural respiration such as has been described to exist in incised wounds of the lung, hermetically sealing might afford relief if there were no complication and the sealing could be maintained long enough. This continued sealing, however, it is believed, the circumstances connected with the discharges, and other consequences of gunshot wounds, will not admit of. But supposing that for the relief of this symptom the chest has been hermetically sealed, an irregularly torn lung, or a lung with the open track of a ball through it, will almost certainly give rise to pneumothorax, and the continued escape of air into the cavity will cause such compression on all the contents of the chest as to aggravate the dyspnoea extremely, and cause imminent danger to life from suffocation. In such a case, again, the wound must be reopened, or another opening practised by the trocar, to afford relief.

"Lastly, Dr. Howard advances that *suppuration* is greatly diminished, if not prevented, by shutting out external air. This is doubtless the case with incised wounds, but can we expect it to be with penetrating gunshot wounds? An uncomplicated wound of this kind, without hemorrhage, without lodgment of foreign bodies, is unfortunately rare indeed, and such complications can scarcely fail but lead to pleuritic effusion and empyema. If the hemorrhage be slight, the blood may be absorbed: but if it be in its usual quantity, and not evacuated, it will irritate the serous sac, and produce the same effects as foreign bodies. Mr. Guthrie's experience in the Peninsular War led him to state, that in cases in which there was not a free communication between the wound in the parietes and the cavity of the chest pleuritic effusion was the principal danger to be feared. 'When the external wound,' Mr. Guthrie says, 'has been closed, or is so partially closed as not to allow the escape of the effused fluid, it is commonly the immediate cause of the death of the patient. Its secretion and early evacuation are, therefore, the most important points to be attended to in wounds of the chest.'

"I have thought it right to consider this subject at some length, because I fear, if penetrating gunshot wounds of the chest are treated indiscriminately by hermetically sealing the external wound or wounds, a fatal termination will be induced in some cases which might terminate otherwise under the more ordinary methods of treatment. But if my fears in this respect should be proved to be groundless, and practice shall bring to light an improved method of treating these serious injuries, military surgery will be greatly indebted to its author; for it is unhappily most true that hitherto, in all campaigns, the proportion of fatality in really penetrating and perforating wounds of the chest has always been excessively large. I believe the proportion of fatality would even appear greater than it does in some tables if the diagnosis were more accurately made in the various hospitals from the combined returns of which

such tables have been composed. Easy as one might at first suppose to be the diagnosis of a musket-ball wound of the chest, whether penetrating or non-penetrating, experience shows that it is not so. Partial circuits of balls beneath the integuments and the muscles of this region, beneath the scapula, perhaps complicated with great bruising, fracture, hemorrhage, and attended with dyspnoea, hæmoptysis, and faintness, deceive the unwary at once into the belief that the chest must have been opened and traversed by the ball when the pleura has escaped entire. The circumstances of field hospitals for some time after a battle too often add to the chances of inaccurate diagnosis of particular wounds, and errors, once made, are not likely to be changed in the tabular returns, although the nature of each case may be more truly arrived at in the secondary or general hospitals, through which the patients subsequently pass. I have repeatedly seen cases returned as *penetrating wounds*, in which I have been able to demonstrate satisfactorily that the cavity of the chest has not been exposed at all. You will find several such cases described by me in the last volume of the *Army Medical Reports*, under *Wounds of the Chest*. If, as has been stated, a field hospital should be established in America for the reception of gunshot wounds of the chest, and the cases be submitted to the treatment I have been commenting upon, it is especially to be hoped that the diagnosis in each case shall be in the first instance established and defined as accurately as possible, so that the value of the observations made on the effects of this treatment, and of the tabular deductions as to its final results, may not be impaired by any doubts as to the nature of the series of cases which have been subjected to it.

"No pains appear to be spared by the authorities in America to encourage professional investigations of this nature; and under the able direction of the energetic Surgeon-General, Dr. Hammond, and from the observations of the hundreds of medical officers who are labouring in the immense field of campaigning practice which is now afforded in that country, we have every right to expect that great advances will be made there in the science of Military Surgery."

*Ligature of the Left Subclavian inside the Scalenus Muscle, together with Common Carotid and Vertebral Arteries for Subclavian Aneurism. Hemorrhage from the distal end of the Subclavian. Death on 42d day.*—Professor PARKER presented to the New York Pathological Society, October 28, 1863, a specimen of subclavian aneurism of the right side, which he had removed from the body of a man with the following history: During the month of August, 1862, a swelling about the size of a walnut made its appearance, without assignable cause, above the centre of the patient's right clavicle. It did not increase for a period of seven months, when it began slowly to enlarge, so that at the end of a year, when Dr. Parker was first consulted, it had attained the size of a hen's egg.

The diagnosis of aneurism was at once made, and the patient was advised to remain for some time quietly at home, take no violent exercise, and live upon vegetable diet. When he was next seen, the tumour had increased somewhat in size, and by pressure upon the axillary plexus, had given rise to considerable pain in the arm of the affected side. He was advised to submit either to the operation of ligation of the subclavian artery with its uncertain results, or to amputation at the shoulder-joint. At the end of four or five weeks, the patient again presented himself; the tumour had then very much increased in size, and he was suffering extremely from pain in the right arm. He was then admitted (September 2, 1863) to the New York Hospital. His nights were sleepless, and there was a very singular change in his circulation. When last seen, the pulsations in each wrist were regular, and numbered 76; now the pulsations in the right wrist could hardly be appreciated, and on the left side there was nearly the same condition of things present. The pulsation of his carotid varied from 120 to 130. A consultation, which was called, resulted in a decision to tie the common carotid near the bifurcation, and secure a good plug, and also the subclavian inside the scalenus muscle, together with the vertebral artery. It was thought best to ligate the vertebral artery, in order to guard against the acci-

dent which occurred in Kearney Rodgers's case of ligature of the left subclavian in 1845. Dr. Rodgers applied a ligature just inside the vertebral artery, in the first division. His patient went on very well until the fourteenth or fifteenth day, when he died of secondary hemorrhage, the result of the recurrent circulation through the vertebral into the subclavian. On the proximal side of the ligature was a well-formed plug, but on the distal side there was of course no coagulum whatever.

The operation was entered upon, and the ligatures applied without difficulty. The pulsations in the tumour immediately ceased, as did also the intense pain in the arm. The case progressed exceedingly well until the tenth day, when there was a slight hemorrhage, which, however, was easily controlled. On the twelfth day the ligature from the vertebral artery came away. September 17th, ligature of carotid came away; this was followed by a slight hemorrhage, which, however, had nothing to do with the artery itself. The ligature from the subclavian did not come away until the 26th, twenty-four days after the operation. On the 29th there was a slight and easily controlled hemorrhage. Oct. 1st. Suppuration from the wound was very free; although nature had done a good deal towards closing the opening, the tissues gradually broke away under the influence of pressure, and of the persulphate of iron, which had been used to check the bleeding. Oct. 7. Hemorrhage to the extent of three ounces, and pretty free. In the evening hemorrhage again, about one ounce. He rallied, however, from all this until the forty-second day after the operation, when hemorrhage again occurred, and he died.

The autopsy was made four hours post-mortem, by Dr. Sands, assisted by the gentlemen of the house-staff. The following is his report:—

Right sterno-mastoid removed; clavicles on either side sawn across at the junction of the outer with the middle third; and the sternal portion removed, together with the sternum, the costal cartilage having been previously divided; pericardium opened, and an incision made into the aorta, through which a pipe was introduced, and water injected upwards. After a considerable quantity of water was thrown into the vessels, some of it was seen to issue from what was afterwards found to be the distal end of the right subclavian artery; more escaping, however, from the proximal end. The water also appeared through the left internal mammary, which had been cut in raising the sternum, but more through the right internal mammary, although this had likewise been divided. The wound was deep, extensive ulceration having taken place to the right of the trachea; at its bottom was a round opening, which, upon examination, proved to be the distal extremity of the subclavian artery. The common carotid artery, internal jugular vein, and pneumogastric, were matted together by inflammatory products, as were the tissues generally in the neighborhood of the wound. The carotid artery, beyond the point which had been tied, was occupied by a firm plug that extended nearly to its bifurcation. The proximal portion of the carotid, as well as that of the subclavian, had been destroyed by ulceration, so that the bifurcation of the innominate was no longer visible. The latter vessel presented an open mouth with jagged ulcerated edges, and was filled by a firm fibrinous plug, which occupied nearly its entire length, and projected slightly through its open extremity. The distal end of the subclavian had ulcerated away, carrying with it the proximal portion of the vertebral, the distal portion of the latter being found well plugged. Excepting the vertebral, all the branches of the subclavian were found, and were seen to have their normal relation with the main trunk. They were also pervious, as was shown by the fact that they all admitted a probe introduced through the open end of the subclavian, before described as lying at the bottom of the wound. It was evident, therefore, that the patient had died of hemorrhage from the distal end of the subclavian, the blood having found its way into the latter by the recurrent circulation. The aneurismal sac was larger than a hen's egg, and nearly filled with coagula. The axillary artery beyond the aneurism was healthy and unobstructed.

Several important morbid alterations were noticed on the left side of the neck. The left internal jugular vein was entirely obstructed by a plug of a brownish-yellow color, evidently an old coagulum. The left subclavian artery, just beyond

condition of the neck of the bladder, the lithotome could not readily be passed in; a probe-pointed bistoury was therefore substituted for it, and the prostate divided on both sides. The finger now entered with ease, and a large stone was felt very high up in the bladder. Attempts were made to extract it with a long pair of polypus forceps, and then with the ordinary lithotomy forceps, but without success, owing to the great size of the stone; the cut in the prostate was therefore enlarged, and the attempts at extraction renewed, but still unsuccessfully. As it was not deemed safe to enlarge the incision in the prostate further with the knife, the two forefingers were introduced, back to back, and the substance of the gland slightly torn. A larger pair of forceps was then passed in, and by embracing the whole stone within its jaws it was extracted without further difficulty. A bit of catheter was placed in the wound, and the patient sent back to bed.

On the ninth day the urine began to pass through the urethra, and from the twelfth day none escaped by the wound. At the end of three weeks the patient was discharged, with the external wound nearly healed, and free from all symptoms of stone.

The calculus, which appeared to be composed of the triple phosphate of magnesia and ammonia, was large and very rough; it measured three and a half inches in its longest circumference, and two and three-quarters in the shortest; its weight was half an ounce.

Dr. W. said that he was led to perform the operation in the manner related, viz., by making an incision through the skin in the median raphe, instead of the cross cut, employed by Dupuytren, from having observed how easily these parts could be dilated in the incisions practised in perineal section for the division of strictures, in some cases impassable by the smallest sound. In these cases, after cutting through a deep perineum filled with inflammatory exudation, it is often found necessary to exercise much patience and to spend much time in tracing the urethra beyond the stricture. Having had occasion, during the past few years, to do a number of these operations, most of them entirely without any guide, he was led to the reflection that it would be very easy in this way to perform the operation of lithotomy when the operator is guided by the presence of a large staff in the urethra. When the operation by this median section is performed deliberately, the operator has the parts divided freely open to the view, which is not the case in Dupuytren's operation, which has to be performed mainly by the sense of touch. By this method, also, the vessels are much less likely to be wounded than in the common operation. Although different kinds of operations must of necessity be practised to suit different cases, the present method would seem to be the most direct and natural one for arriving at the bladder. Since performing it, Dr. W. said he had found that a similar operation had been suggested by Mr. Erichsen, who had not, however, performed it upon the living subject. Mr. Allarton's and Mr. Beaumont's operations, although done in the median line, are essentially different.

Dr. W. stated that he had now operated upon about thirty cases of stone in the bladder, and thus far had been so fortunate as not to lose a single patient. Most of the operations had been done by the crushing method, which he had found applicable to all cases except in very young persons; the oxalate of lime, or "mulberry calculus," when in an adult patient, and of a moderate size, not being an objection on account of its hardness. In young subjects, on account of the small size of the urethra, the danger of its obstruction by fragments, and the comparative safety of lithotomy, he had generally performed lithotomy by the bi-lateral section, and the recoveries, without exception, have been safe and speedy.—*Boston Med. and Surg. Journ.*, March 10, 1864.

*Ligature of the Common Carotid.*—Prof. C. A. Pore, of St. Louis, records (*St. Louis Med. and Surg. Journ.*, January, and February, 1864) the following interesting case of this:—

"The late General Bayard, who was killed at the battle of Fredericksburg, received an arrow-shot wound in the left upper jaw, on the 11th July, 1860, whilst a lieutenant in New Mexico, in a skirmish with the Indians. The iron point, spear shaped, and two and a half inches long, with a small neck for the



attachment of the wooden shaft, was driven with force, entering a little below the middle of the orbit, and with a slight obliquity backward. The surgeon of the post immediately endeavoured to extract the foreign body. At first it was hoped that this might be accomplished by traction upon the arrow itself, but this was thereby only separated from the iron point, which remained firmly impacted in the bone. Different forceps were then resorted to, and after a trial of two hours the effort was abandoned.

"The absence of suitable instruments, the slight hold which could be obtained on the offending body, as the small neck was all that could be seized, and above all the firm impaction, sufficiently account for the failure of extraction. Slight hemorrhages from the corresponding nostril followed within the subsequent four weeks, and on arriving at St. Joseph, a more serious one occurred.

"The patient reached St. Louis five weeks after the reception of his wound. There was some tumefaction of the left side of his face. The wound at the time had skinned over, so that no foreign substance could be seen, but on gentle pressure with the finger, a hard point was perceptible beneath the integument. There was a muco-purulent discharge still issuing from the nostril, proceeding doubtless from the antrum. On incising the imperfect cicatrix, I felt the projecting neck, and supposing that the arrow point, after so long a time, might be somewhat loosened by the efforts of the organism, I attempted its extraction with the dressing forceps of the pocket case, but found them wholly inadequate. I at once supplied myself with instruments of various kinds, and with a powerful forceps succeeded in one or two efforts in extracting the offending body. This was followed by a troublesome bleeding, both from the nostril and the external wound. By rest, opium, cold, plugging and pressure, this was duly arrested. Several slighter hemorrhages subsequently occurred, but they gave rise to no uneasiness.

"The case now progressed favourably, and the patient was able to get about the streets. He walked to my office, and complained of some inability to separate the jaws, a difficulty, by the way, which had existed all along; I directed him to use gentle and gradual efforts at opening the mouth. In less than an hour his troubles recommenced. The whole cheek and jaw became hot, swollen, and painful. Fever, with renewed hemorrhage, set in, and caused me much anxiety. The same means of arrest first tried did not avail. Extensive extravasation of blood took place, and in order to relieve the pain, tension, and possible sloughing, I deemed it proper to make free counter openings, both in the mouth and on the cheek and neck. From these, large grumous clots were turned out, and through the inner opening the finger's point could be carried round the almost denuded bone, and lodged high up in the pterygoid fossa. The hemorrhage continuing with various and delusive intermissions, the case became critical. Finally, for three successive nights, these came on regularly at midnight, and were copious and exhaustive. From such repeated losses of blood, the patient had now become reduced to the lowest degree, when the farther issue of a few ounces more might have turned the scale against him. I then determined to tie the carotid. This was done on the night of the 16th of September, more than two months after the reception of the wound. Such was the extreme condition of the patient that he fainted during the operation, although in a recumbent position. The operation was a delicate and difficult one, as the parts were very much swollen and altered by sanguineous extravasation and inflammatory effusion, and the incision being correspondingly deep, the effect of artificial light in such cases, at all times bad, was only the worse—for whilst the surface of the wound was well lighted, the sharp, deep shadow rendered its depth almost invisible. The touch, therefore, superseded sight. There was no more hemorrhage. Opium and nutritious ingesta were freely given, and the patient continued to do well. From the thoroughly anæmic state, and the effects of interruption of the cerebral circulation, caused by the ligature, the patient's mind was somewhat impaired, and I feared some altered nutrition or softening of the brain. These symptoms, however, gradually yielded, and after several weeks he was again up and about. Being rather impatient and self-willed, he went out before I deemed it prudent for him to do so. The ligature was slow in coming away, and for some weeks after its fall, a small fistulous opening re-

mained. The lieutenant now left St. Louis for West Point, to which place he was assigned for duty. When on a visit to his family in New Jersey, and traveling by railroad at night between New York and Philadelphia, after much bodily fatigue, a further hemorrhage occurred from the still unclosed fistula of the cervical wound. By rest and moderate pressure this was relieved. This bleeding was the last—the wound healed and the patient recovered his usual health. There always remained, however, an unpleasant fulness of the affected cheek and masseteric portion of the face."

*Treatment of Gunshot and Penetrating Wounds of Chest and Abdomen by Hermetically Sealing.*—B. HOWARD, M. D., Ass. Surg. U. S. A., advocates (*Amer. Med. Times*, vol. vii., No. 14) the treatment of gunshot wounds of the chest and abdomen by a plan which he calls "hermetically sealing." The following is his description of this mode of treatment:—

"All accessible foreign bodies having been removed, introduce the point of a sharp-pointed bistoury perpendicularly to the surface just beyond the contused portion, and, with a sawing motion, pare the entire circumference of the wound, converting it into a simple incised wound of an elliptical form. Dissect away all the injured parts down to the ribs, then bring the edges of the wound together with silver sutures, deeply inserted, at not more than a quarter of an inch apart; secure them by twisting the ends, which are then cut off short and turned down out of the way. Carefully dry the surface, and with a camel's-hair pencil apply a free coating of collodion over the wound; let it dry, and repeat it at discretion.

"For greater security, shreds of charpie may now be arranged crosswise over the wound, after the manner of warp and woof; saturate it with collodion, and when dry repeat the process, until the wound is securely cemented over. As a still greater protection, a dossil of lint may then be placed over the part and retained with adhesive straps.

"If there be a tendency to undue heat in the part, it may be kept down with cold affusion; should any loosening of the dressing occur, an additional coating of collodion may be applied. The sutures must not be removed until healing by first intention is complete.

"Should suppuration occur, so as to occasion distressing dyspnoea, proceed to treat it in all respects as a case of empyema, introducing the trocar at the most dependent point, and taking special care to avoid the admission of air."

Deputy Inspector-General T. LONGMORE, Professor of Military Surgery in the British Army Medical School at Netley, and one of the most experienced and learned military surgeons of the day, makes (*Lancet*, Jan. 2d, 1864) the following very interesting remarks on this mode of treatment:—

"In considering the proposed treatment, what first attracts notice is the absence of any limitations in its application, and the assumption that healing of the wound by the first intention can be secured in all such cases. It is the unqualified manner in which this plan of treatment is put forth that makes me think it important to notice it; for if put into practice as described, I feel certain it must lead not only to much disappointment, but occasionally do considerable harm. The wounds of the chest to which it is applied are simply designated 'penetrating wounds'; but it is obvious from Dr. Howard's remarks that he includes perforating wounds, and indeed all wounds in which the cavity of the chest is opened, by gunshot, with or without wound of the lung. As I have already explained, the variations which are constantly found in the accompanying circumstances of a number of wounds of the chest by gunshot involve corresponding variations in their degrees of gravity and probable issues. The difference between an ordinary penetrating wound by gunshot, and a perforating one, is immense; in the one case the projectile is probably lodged; in the other it has passed out. Again, in either a penetrating or a perforating wound most important differences arise in the nature of the injury and the effects of the treatment, according as the lung is penetrated or not; and serious differences also depend upon the part of the lung penetrated or traversed by the ball. All these circumstances should be noted and taken into account in estimating the value of a

special plan of treatment in a given number of cases. If a ball passes through or near the root of the lung, it is scarcely possible to prevent a fatal result by any plan of treatment; if the track of the ball has been limited to the periphery of the lung, and the constitution of the patient and opportunities of treatment be favourable, we have a right to expect a favourable cure in a considerable proportion of cases under the mode of treatment which has hitherto been in ordinary use of late years, and which I have already described to you.

"The surgeon's efforts to secure healing by the first intention in the way named in gunshot wounds will, I think, be attended with success in only a very small proportion of exceptional cases. It is the rule of practice among army surgeons to close completely, by sutures, compresses, adhesive plasters, and bandages, all wounds of the chest—such as incised and stabbing wounds—in which there is thought to be a probability of union by the first intention being obtained. Not only the relief to the breathing by rendering more complete inflation of the lungs practicable—which is the immediate effect of this operation in an incised wound of the soft parietes of the chest and periphery of the lung—but the arrest of the hemorrhage (if this complication exist), together with the prevention of subsequent extended pleuritis and pleuro-pneumonia, are sought to be obtained by these means. And as in many cases the urgent symptoms have gradually abated under this treatment, and eventually respiration in the wounded lung been re-established, it has been rendered evident that the wounds had become closed by the adhesive process. You will find such cases fully recorded in the works of Guthrie, Larry, Hennen, and others. But in treating cases of incised wounds we cannot rely upon obtaining healing by adhesion even of the external orifice, although this may be uncomplicated with injury to bone or cartilage; and we should be prepared to meet these abortive attempts by other definite plans of treatment. The restlessness of the patient, the natural movements of the chest in respiration, inflammatory action, cough, weakened health, habits of life, and special conditions of the tissues, may thwart our attempts to effect this object. When to these sources of failure we add continued hemorrhage at the seat of injury in the parietes, and torn cartilage or divided ribs—such frequent concomitants of these injuries—the difficulty of obtaining healing by the first intention is still further increased.

"When we leave incised wounds and approach those of penetrating gunshot wounds—at least those inflicted by projectiles as large as ordinary musket-balls—the probability of obtaining healing by the first intention seems to be altogether absent. Here not only all the ordinary sources of prevention of this desired result which I have just mentioned exists in an exaggerated degree, but, in addition, a rib, when struck, is not simply divided as by a sword, but is contused and splintered, and the soft parts around the opening made by the ball, for a distance varying according to the size and shape of the projectile, and its amount of momentum, are bruised, and their vitality and reparative tendency proportionably diminished. To remove this sphacelated surface and surrounding bruised structures by incision, and then to force the edges of this enlarged opening together by sutures (for it is to be remembered, even in cases where ribs and their cartilages have escaped, the intercostal muscular tissues and pleura—not merely the integument—are contused and torn), appears to involve the necessity of such a strain as would prevent all probability of cohesion by first intention, even if such further impediments as costal movements, sudden impulses by coughing, and symptoms of inflammation arising, were not in existence. Experience has hitherto taught that in these injuries provision must be allowed for the escape of sloughs and suppurative discharges from the parietal wounds—not to mention other circumstances; and that to pent them up by closed compresses is to thwart nature's plans of attempting cure, and to aggravate the evils which have been already inflicted. Hence the rule has arisen in all cases of *incised wounds* of the chest, whether hemorrhage be present or not, to close the wound by suture and compress as early as possible, and to seek for union by adhesion; but in *gunshot wounds*, not to close by suture, and only to make accurate closure a matter of necessity where they are accompanied by active hemorrhage.

"Baron Larry, in his memoirs of the Egyptian campaign, has given an excellent explanation of the manner in which the urgent symptoms of an incised wound of the lung with hemorrhage, when the hemorrhage arises wholly from the pulmonary vessels, are frequently caused to cease, if the wound in the chest be accurately closed. While the wound is open, the inspired air, finding a ready way of exit by the opening in the lung, constantly opposes the cohesion of the margins of this opening, at the same time that its escape in this way prevents the distension of the air-cells of the surrounding lung-structure, which would lessen the arterial flow, and accelerate the return of the blood by the pulmonic veins. When the wound in the chest has been accurately closed, after allowing the blood already effused in the pleura to escape through the opening by favourable position, the air introduced into the lung by breathing, not finding the same way of issue, fills more completely the small bronchial tubes and air-cells, facilitates the return of blood to the heart, causes the divided lung surfaces to approach each other, favours the construction of the orifices of the wounded vessels, and assists by these means, as a consequence, the adhesive process. But in the case of a contused and ragged canal being opened through the lung by a projectile passing into or through it, all the circumstances are manifestly changed: if bleeding is going on from its surface, neither the passage of the air through the wound in the chest-wall nor its restraint can exert influence upon it, for the track of the ball will remain patulous under all circumstances, so far as the act of respiration is concerned.

"Let me briefly consider the three advantages which Dr. Howard advocates for the hermetically sealing treatment in gunshot wounds. Dr. Howard states the causes of fatality in gunshot wounds of the lungs to be hemorrhage, dyspnoea, and suppuration; and that these may be restrained and modified, if not prevented or removed, by the simple operation already described.

"*Hemorrhage*, Dr. Howard rightly places first amongst the causes of fatality. It is the symptom which of all others alarms the surgeon; for he cannot but feel how much the power of nature to arrest the flow of blood, and how much the result of his own endeavours to aid nature in her efforts, must depend upon accidental circumstances connected with the course of the projectile and the injuries it has inflicted, which it is entirely out of his power to control. The track of the bullet is out of sight; the injury it has done to the lung is out of reach. It may be judged that vessels of the largest size have not been divided as it traversed the viscus, or death would have been nearly instantaneous; a surmise may even be made of the part of lung wounded by the situation of the aperture of entrance, or, if two openings exist, by a supposed line connecting them. But such surmises are often proved to be erroneous by post-mortem inspection: even the source of the hemorrhage, whether it be wholly pulmonic, or wholly parietal, or the two combined, cannot be diagnosed with certainty in these complicated wounds. It is not to be wondered at, then, that under such circumstances of doubt and consciousness of helplessness, surgeons, though recognizing the differences between a gunshot and an incised wound of a lung, should nevertheless, almost instinctively, stop the gap through which the life-blood of the patient is seen to be flowing. Although the surfaces of the wound in the lung cannot be brought into contact and coaptation, there is still the hope that as the blood accumulates within the pleura it may exert such a pressure upon the wounded lung, and, perhaps, to plug up the mouths of the open vessels, as to stay the flow of blood and procure time for the saving processes of nature and the application of remedial measures on the part of the surgeon that may lead to the recovery of the patient. And the most experienced army surgeons have long recommended this course under circumstances of gunshot wounds *with profuse hemorrhage*. 'Hermetically sealing,' thus applied, is only a new term: the practice is not new. Immediate closure of the wound is, at the present day, the general practice of all surgeons in such cases. The difference in the treatment between the practice of *closure* and *hermetically sealing* is, that in the one no attempt is made to obtain healing of the wound by the first intention, which it is not expected can be obtained in openings made

by gunshot; and, secondly, that the continuation of the closure is made subject to other contingencies which are not unlikely to follow the injury. It frequently happens in such cases that the flow of blood, after the closure, is not arrested until the accumulation on the wounded side is so great that the pressure exerted upon the heart and sound lung is strong enough to threaten death from asphyxia. It is manifest under such circumstances that the wound cannot be kept hermetically sealed; it must be reopened, some of the effused blood allowed to escape, and there still remains the hope that the weakened state of the circulation, and the usual condition consequent on loss of much blood, with the aid of proper remedial measures, may favour the prevention of further hemorrhage. If we persist, under these circumstances, in maintaining the hermetically sealing of the chest—if Dr. Howard's injunction that the sutures are not to be removed until healing by the first intention is complete is attempted to be carried out—I fear the risk will be run of causing the death of the patient by suffocation.

"*Dyspnoea* is a symptom which may depend on several causes. It may be induced by the very circumstances I have just described, after closure of the wound—viz., continued hemorrhage and accumulation of blood in the cavity of the chest, and sealing will not then afford relief:—if it depend upon the interference with natural respiration such as has been described to exist in incised wounds of the lung, hermetically sealing might afford relief if there were no complication and the sealing could be maintained long enough. This continued sealing, however, it is believed, the circumstances connected with the discharges, and other consequences of gunshot wounds, will not admit of. But supposing that for the relief of this symptom the chest has been hermetically sealed, an irregularly torn lung, or a lung with the open track of a ball through it, will almost certainly give rise to pneumothorax, and the continued escape of air into the cavity will cause such compression on all the contents of the chest as to aggravate the dyspnoea extremely, and cause imminent danger to life from suffocation. In such a case, again, the wound must be reopened, or another opening practised by the trocar, to afford relief.

"Lastly, Dr. Howard advances that *suppuration* is greatly diminished, if not prevented, by shutting out external air. This is doubtless the case with incised wounds, but can we expect it to be with penetrating gunshot wounds? An uncomplicated wound of this kind, without hemorrhage, without lodgment of foreign bodies, is unfortunately rare indeed, and such complications can scarcely fail but lead to pleuritic effusion and empyema. If the hemorrhage be slight, the blood may be absorbed: but if it be in its usual quantity, and not evacuated, it will irritate the serous sac, and produce the same effects as foreign bodies. Mr. Guthrie's experience in the Peninsular War led him to state, that in cases in which there was not a free communication between the wound in the parietes and the cavity of the chest pleuritic effusion was the principal danger to be feared. 'When the external wound,' Mr. Guthrie says, 'has been closed, or is so partially closed as not to allow the escape of the effused fluid, it is commonly the immediate cause of the death of the patient. Its secretion and early evacuation are, therefore, the most important points to be attended to in wounds of the chest.'

"I have thought it right to consider this subject at some length, because I fear, if penetrating gunshot wounds of the chest are treated indiscriminately by hermetically sealing the external wound or wounds, a fatal termination will be induced in some cases which might terminate otherwise under the more ordinary methods of treatment. But if my fears in this respect should be proved to be groundless, and practice shall bring to light an improved method of treating these serious injuries, military surgery will be greatly indebted to its author; for it is unhappily most true that hitherto, in all campaigns, the proportion of fatality in really penetrating and perforating wounds of the chest has always been excessively large. I believe the proportion of fatality would even appear greater than it does in some tables if the diagnosis were more accurately made in the various hospitals from the combined returns of which

such tables have been composed. Easy as one might at first suppose to be the diagnosis of a musket-ball wound of the chest, whether penetrating or non-penetrating, experience shows that it is not so. Partial circuits of balls beneath the integuments and the muscles of this region, beneath the scapula, perhaps complicated with great bruising, fracture, hemorrhage, and attended with dyspnoea, hæmoptysis, and faintness, deceive the unwary at once into the belief that the chest must have been opened and traversed by the ball when the pleura has escaped entire. The circumstances of field hospitals for some time after a battle too often add to the chances of inaccurate diagnosis of particular wounds, and errors, once made, are not likely to be changed in the tabular returns, although the nature of each case may be more truly arrived at in the secondary or general hospitals, through which the patients subsequently pass. I have repeatedly seen cases returned as *penetrating wounds*, in which I have been able to demonstrate satisfactorily that the cavity of the chest has not been exposed at all. You will find several such cases described by me in the last volume of the *Army Medical Reports*, under Wounds of the Chest. If, as has been stated, a field hospital should be established in America for the reception of gunshot wounds of the chest, and the cases be submitted to the treatment I have been commenting upon, it is especially to be hoped that the diagnosis in each case shall be in the first instance established and defined as accurately as possible, so that the value of the observations made on the effects of this treatment, and of the tabular deductions as to its final results, may not be impaired by any doubts as to the nature of the series of cases which have been subjected to it.

"No pains appear to be spared by the authorities in America to encourage professional investigations of this nature; and under the able direction of the energetic Surgeon-General, Dr. Hammond, and from the observations of the hundreds of medical officers who are labouring in the immense field of campaigning practice which is now afforded in that country, we have every right to expect that great advances will be made there in the science of Military Surgery."

*Ligature of the Left Subclavian inside the Scalenus Muscle, together with Common Carotid and Vertebral Arteries for Subclavian Aneurism. Hemorrhage from the distal end of the Subclavian. Death on 42d day.*—Professor PARKER presented to the New York Pathological Society, October 28, 1863, a specimen of subclavian aneurism of the right side, which he had removed from the body of a man with the following history: During the month of August, 1862, a swelling about the size of a walnut made its appearance, without assignable cause, above the centre of the patient's right clavicle. It did not increase for a period of seven months, when it began slowly to enlarge, so that at the end of a year, when Dr. Parker was first consulted, it had attained the size of a hen's egg.

The diagnosis of aneurism was at once made, and the patient was advised to remain for some time quietly at home, take no violent exercise, and live upon vegetable diet. When he was next seen, the tumour had increased somewhat in size, and by pressure upon the axillary plexus, had given rise to considerable pain in the arm of the affected side. He was advised to submit either to the operation of ligation of the subclavian artery with its uncertain results, or to amputation at the shoulder-joint. At the end of four or five weeks, the patient again presented himself; the tumour had then very much increased in size, and he was suffering extremely from pain in the right arm. He was then admitted (September 2, 1863) to the New York Hospital. His nights were sleepless, and there was a very singular change in his circulation. When last seen, the pulsations in each wrist were regular, and numbered 76; now the pulsations in the right wrist could hardly be appreciated, and on the left side there was nearly the same condition of things present. The pulsation of his carotid varied from 120 to 130. A consultation, which was called, resulted in a decision to tie the common carotid near the bifurcation, and secure a good plug, and also the subclavian inside the scalenus muscle, together with the vertebral artery. It was thought best to ligate the vertebral artery, in order to guard against the acci-

dent which occurred in Kearney Rodgers's case of ligature of the left subclavian in 1845. Dr. Rodgers applied a ligature just inside the vertebral artery, in the first division. His patient went on very well until the fourteenth or fifteenth day, when he died of secondary hemorrhage, the result of the recurrent circulation through the vertebral into the subclavian. On the proximal side of the ligature was a well-formed plug, but on the distal side there was of course no coagulum whatever.

The operation was entered upon, and the ligatures applied without difficulty. The pulsations in the tumour immediately ceased, as did also the intense pain in the arm. The case progressed exceedingly well until the tenth day, when there was a slight hemorrhage, which, however, was easily controlled. On the twelfth day the ligature from the vertebral artery came away. September 17th, ligature of carotid came away; this was followed by a slight hemorrhage, which, however, had nothing to do with the artery itself. The ligature from the subclavian did not come away until the 26th, twenty-four days after the operation. On the 29th there was a slight and easily controlled hemorrhage. Oct. 1st. Suppuration from the wound was very free; although nature had done a good deal towards closing the opening, the tissues gradually broke away under the influence of pressure, and of the persulphate of iron, which had been used to check the bleeding. Oct. 7. Hemorrhage to the extent of three ounces, and pretty free. In the evening hemorrhage again, about one ounce. He rallied, however, from all this until the forty-second day after the operation, when hemorrhage again occurred, and he died.

The autopsy was made four hours post-mortem, by Dr. Sands, assisted by the gentlemen of the house-staff. The following is his report:—

Right sterno-mastoid removed; clavicles on either side sawn across at the junction of the outer with the middle third; and the sternal portion removed, together with the sternum, the costal cartilage having been previously divided; pericardium opened, and an incision made into the aorta, through which a pipe was introduced, and water injected upwards. After a considerable quantity of water was thrown into the vessels, some of it was seen to issue from what was afterwards found to be the distal end of the right subclavian artery; more escaping, however, from the proximal end. The water also appeared through the left internal mammary, which had been cut in raising the sternum, but more through the right internal mammary, although this had likewise been divided. The wound was deep, extensive ulceration having taken place to the right of the trachea; at its bottom was a round opening, which, upon examination, proved to be the distal extremity of the subclavian artery. The common carotid artery, internal jugular vein, and pneumogastric, were matted together by inflammatory products, as were the tissues generally in the neighborhood of the wound. The carotid artery, beyond the point which had been tied, was occupied by a firm plug that extended nearly to its bifurcation. The proximal portion of the carotid, as well as that of the subclavian, had been destroyed by ulceration, so that the bifurcation of the innominate was no longer visible. The latter vessel presented an open mouth with jagged ulcerated edges, and was filled by a firm fibrinous plug, which occupied nearly its entire length, and projected slightly through its open extremity. The distal end of the subclavian had ulcerated away, carrying with it the proximal portion of the vertebral, the distal portion of the latter being found well plugged. Excepting the vertebral, all the branches of the subclavian were found, and were seen to have their normal relation with the main trunk. They were also pervious, as was shown by the fact that they all admitted a probe introduced through the open end of the subclavian, before described as lying at the bottom of the wound. It was evident, therefore, that the patient had died of hemorrhage from the distal end of the subclavian, the blood having found its way into the latter by the recurrent circulation. The aneurismal sac was larger than a hen's egg, and nearly filled with coagula. The axillary artery beyond the aneurism was healthy and unobstructed.

Several important morbid alterations were noticed on the left side of the neck. The left internal jugular vein was entirely obstructed by a plug of a brownish-yellow color, evidently an old coagulum. The left subclavian artery, just beyond

the origin of its branches, became suddenly smaller than natural, and on examination was discovered to be obliterated for five-eighths of an inch, beyond which it again assumed its normal size and appearance. The occlusion of the vessel seemed to have been the result of inflammation, the coats being thickened and indurated.

Dr. PARKER stated in conclusion that the operation for ligation of the subclavian had been performed in all eleven times by the following surgeons: I. Colles, in 1811, death occurring from hemorrhage on the fourth day; II. Mott, in 1833, death from hemorrhage on the eighteenth day; III. Hayden, in 1835, death from hemorrhage on the twelfth day; IV. O'Reilly, in 1836, death by hemorrhage on the twenty-third day; V. Partridge, in 1841, death from pericarditis and pleuritis on the fourth day; VI. and VII. Liston, in two cases—in the first, 1837, death occurred from hemorrhage on the thirteenth day, and in the second, 1839, death from the same cause on the thirty-sixth day; VIII. and IX. Auverte, in two cases; in both, death was the result of hemorrhage, in the first on the twenty-second, and in the second on the eleventh day. X. Rodgers' case, already referred to; XI. Lastly, Cuvellier, in 1860, death from hemorrhage on the tenth day—carotid and subclavian of right side ligatured.

Dr. Buck remarked—A case invested with deeper interest than the one before us could scarcely be presented for our consideration. From the post-mortem dissection just described and the specimen exhibited, it appears that, notwithstanding the direct and reverse arterial currents had been intercepted by the ligatures applied to the subclavian, common carotid, and vertebral arteries, the success of the operation was defeated by the circulation still kept up in the aneurismal sac by means of the thyroid axis, internal mammary, and superior intercostal branches. The anastomoses of the terminal branches of the right inferior thyroid with those of the superior of the same side, and also of the internal mammary with the epigastric, must have afforded the channels for restoring and keeping up the circulation in the sac, and thus the formation of coagulum within its cavity has been prevented. Though the ligature upon the subclavian had completely divided the artery, leaving both ends open and exposed, the plug on the proximal side of the ligature had filled up the innominate, and closed it so impermeably as not to permit the passage of water injected at the root of the aorta. On the distal side of this ligature, however, the open mouth of the artery communicated immediately with the sac, and had furnished the repeated hemorrhages preceding death.

The question here suggests itself—Would the ligation of the thyroid axis, the internal mammary, and superior intercostal, in addition to the vertebral, have arrested all circulation in the aneurismal sac, and thus secured the conditions of success. It appears to me that it would have done so, and it is my firm conviction that this expedient ought to be tried, before we concede the impossibility of curing aneurism of the outer division of the subclavian artery by an operation.—*Am. Med. Times*, March 5, 1864.

*Ligation of the Subclavian Artery.*—Dr. ARMSBY, of Albany, has performed this operation on a healthy, robust man, 28 years of age, who had his right arm shattered by the accidental discharge of a cannon, July 7th, 1863.

Gangrene commenced on the second day, and on the third Dr. A. amputated near the shoulder. The stump healed kindly, and on the 12th day after the amputation he was able to go out, and soon after resumed his active business pursuits. His health remained good until September, when the stump began to swell and be painful, and on the 10th of November Dr. A. detected an aneurismal tumour; this tumour increased rapidly, elevating the bones of the shoulder, the pectoral muscles, and filling the axilla. The skin soon after gave way, and the patient lost by a sudden and rapid hemorrhage between two and three quarts of blood, causing faintness and almost loss of pulse. The opening was closed by compresses and adhesive plaster. The only chance of saving life seemed to be by ligation of the subclavian artery above the clavicle, which was performed by Dr. Armsby, on the 19th of November, 1863. The patient was placed on his back, with his face turned to the left. The first incision was about half an inch above and parallel with the superior border of the clavicle, extending from



the sterno-mastoid to the trapezius muscle; and exposing the superficial cervical fascia and the platysma myoides. The second incision was vertical, along the posterior border of the sterno-mastoid, intersecting the first at the margin of this muscle. In elevating the superficial fascia and the platysma myoides, it became necessary to apply a ligature to the external jugular vein, and divide it, as it could not be sufficiently retracted without danger of laceration. Three branches of the supra-scapular and deep cervical arteries bled profusely, and required ligatures. The clavicular attachment of the sterno-mastoid was unusually broad, and one half of it had to be divided to reach the scalenus-anticus, at its attachment to the rib. The deep cervical artery was held upward; the supra-scapular artery and the subclavian vein carefully depressed; and the great subclavian artery fully exposed as it emerged from between the scaleni muscles. In separating the artery from the great veins, which covered and inclosed it, a slight gurgling sound occurred, as if air was entering the circulation. This was a moment of intense anxiety, as such an accident might have been instantly fatal. A bit of sponge was pressed against the part, and as no constitutional disturbance followed, the operation proceeded. The artery was found in a healthy state, and the ligature was cast around it by the aneurismal needle of Mott. The situation of the artery was unusually deep, from the elevated position of the shoulder, by the tumour, but every person present had a distinct view of it before the ligature was tied.

The chief difficulties and dangers of the operation consisted in the following circumstances: The great size of the tumour, thrusting upward the bones of the shoulder; the distension of the surrounding parts; the great size of the veins, which covered and enveloped the artery; the large nerves of the axillary plexus, liable to be included in the ligature; and the danger of the introduction of air into the circulation. The pulsation in the tumour ceased as soon as the ligature was drawn, and the patient improved rapidly under the use of tonics. The sac gradually diminished, until the nineteenth day after the operation, when it became more painful, and the skin, or a portion of it, gave indications of sloughing. Dr. Armsby was again sent for, who opened the sac, and removed nearly a quart of coagulated blood and fibrinous matter.

The case has progressed favourably; the ligature came away on the twenty-ninth day, and the recovery has been rapid and complete, as far as the operation is concerned. There is a slight discharge of watery matter from the sac, which is gradually diminishing.—*Boston Med. and Surg. Journ.*, Feb. 4, 1864.

*Ligature of the Common Iliac Artery.*—Prof. BRAINARD reports (*Chicago Medical Journal*, March, 1864) the following case in which he performed this operation: April 9th, 1863, called to visit Col. Scott, 19th Illinois Vols., who was wounded at the battle of Stone River. A musket-ball had passed from before backwards through the thigh, entering below the pelvis and at the outside of the femoral artery, grazing the inside of the femur, and coming out of the buttock.

At the time of the accident, there was hemorrhage, which was controlled, as was supposed, by pressure on the femoral artery. The compression was continued about three weeks, during which time no hemorrhage occurred. The wound suppurated and some small scales of bone came out at each orifice of the wound.

He was removed to his home in Chicago, and did well, although the wound remained open behind, until about the 5th of April, three weeks after the accident, when a small tumour formed in front, which was opened. A day or two after, a hemorrhage took place from both openings. It was on account of this that my advice was asked. On the night of the 9th, at 11 o'clock, a copious hemorrhage renewed, which was controlled in a measure, but continued at intervals during the night.

10th. Saw him at 10 o'clock, and applied the compressor over the femoral artery. This seemed to arrest the bleeding, but in about two hours it returned.

The bleeding had been so great as to threaten death, and I determined to tie the external iliac artery, not doubting from the history of the case that the hemorrhage was from branches of the profunda femoris close to its origin.

With the aid of Prof. Freer and the Drs. Hurlburt, the ligature was placed upon the external iliac artery in the usual manner, as that described by Lisfranc; but on changing the position of the patient to remove the soiled bedclothing, the bleeding renewed as freely as ever. On a re-examination, the ligature was found to control the external iliac, and it was evident that the ischiatic artery was the one giving blood. The danger was urgent, and I enlarged the wound upward and outward, and placed a ligature on the common iliac artery. The anterior wound in the thigh was then enlarged, and a great quantity of coagula removed from it by the finger. No bleeding; patient under chloroform during the operation. Warm applications to the member; brandy and broth ordered.

11th, A. M. Limb cool, but not cold; has been troubled with nausea and attempts to vomit, which gave pain in the wound; pulse 100, condition good. Ordered an enema and a solution of soda bicarb. with gum Arabic for the vomiting. Broth continued.

12th. Has considerable pain and tenderness in the region of the left kidney. Pulse 120; slept well during the night, with two doses of acetum opii; wounds commencing to suppurate.

13th. Pulse 100; tenderness in left side diminished; takes broth with wine; slept well.

20th. Out of operation suppurates freely. Allowed beef broth and wine, with opiate at night.

24th. Ligature on the external iliac artery came away.

May 1. Ligature on common iliac came away. Patient doing well.

12th. Wound from operation healed.

From this time, he remained in good health until the early part of July, although the wound continued to suppurate and some small pieces of bone were discharged at the posterior orifice.

At this time he was attacked by a copious watery diarrhoea followed by typhoid fever, of which he died July 8th, three months after the operation.

*Divided Tendo-Achillis united by Silver Wire.*—Dr. G. L. SIMMONS, of Sacramento, relates (*Pacific Med. and Surg. Journ.*, Jan., 1864) a case in which the tendo-Achillis of a man was completely severed accidentally about an inch from its attachment. Dr. S. found the upper edge of the cut tendon retracted an inch and a quarter into its sheath. Dr. S. flexed the limb, drew down the retracted tendon by strong forceps, and united the cut ends with a large sized silver ligature; the leg was kept flexed for a few days with adhesive straps, after which the usual slipper and dog-collar were used. In a few weeks the patient was able to walk in a high-heeled shoe with but little pain. Scarcely any stiffness resulted from the injury, and at the date of the report he could walk freely with the slightest perceptible halt. The "propriety of using silver wire in uniting tendons," Dr. S. says, "can hardly be questioned. In the above case the result was all that could be desired; and, although position alone might possibly have accomplished the same end in the same time, yet it is probable that the perfect approximation of the parts by the ligature assisted in defining the bond of union until it became strong. In this case after the uniting mass was perfected, I removed the silver wire, as the play of the tendon caused the foreign body to slightly irritate the neighbouring tissues.

*Hospital Gangrene.*—Dr. FRANK H. HAMILTON, Jr., Ass. Surg. U. S. A., has given (*American Medical Times*, Oct. 31, 1863) a tabular statement of 33 cases of hospital gangrene which occurred in the McDougal General Hospital. It appears from this table that but two of the cases terminated fatally, and these some days after the gangrene had been arrested. In one of these the patient died from exhaustion, the result of extensive suppuration in the knee-joint, the wound having been in a perfectly healthy condition for several days. In the other the patient died from dysentery, his wound having put on a healthy action two weeks before his disease.

In one case where nitric acid was used, the disease was not arrested, and at the end of ten days it was found necessary to amputate the leg above the knee.

The stamp healed by the first intention. An analysis of the table shows that the average duration of all cases, under all treatments, amounts to 12.15 days.

Number treated with nitric acid . . . . .	18
Average duration of disease . . . . .	16 days
Number treated with sol. bromine . . . . .	14
Average duration . . . . .	6.6428 days
Number treated with iodine . . . . .	1
Average duration . . . . .	7 days

These results are decidedly favourable to bromine.

*Traumatic Tetanus successfully treated with Chloroform and Subsequent Use of Belladonna.*—Dr. L. O. LANE reports (*San Francisco Medical Press*, Oct., 1863) the following case: Some weeks since, in the St. Mary's Hospital in this city, there was admitted a young man with fracture of the os femoris in its upper third; the fracture, which was comminuted in character, was the result of a fall from one of the city cars, while in motion.

The injury was treated by the application of Desault's long-extending and counter-extending splint. Shortly after the limb was dressed in this manner, tetanic symptoms presented themselves in the form of trismus, which ultimately became general, the whole body being thrown into violent muscular contractions. Soon after the supervision of these symptoms, the patient was put under the influence of chloroform by inhalation. He was maintained in a state of constant anesthesia for near seven hours, consuming, in the meantime, several ounces of chloroform, administered by means of an inhaler, so constructed, that but a small amount of the article could escape without being breathed. After the use of chloroform for that length of time, the tetanic symptoms so far disappeared, that the inhalation was suspended, and the patient was ordered belladonna; opiates were also given him. On the following day, trismus again ensued, when resort was had again to the chloroform. The closure of the lower jaws was quickly relieved, whereupon the inhalation was discontinued.

The remedy to which I am inclined to refer the rescue of the man's life in this case, was chloroform. The inhalation, as will be perceived, was carried to a much greater extent than usual, or than prudence would dictate in any other than a hopeless case. After the discontinuance of the anæsthetic, the patient presented symptoms of aberration of mind, which were present for several days afterwards, though they gradually became less, and in a week afterwards, they disappeared. The patient is yet under my charge, in every respect doing well, though time enough has not yet elapsed to have effected entire union of his fractured femur.

*Circumscribed Tumour of the Umbilicus, closely simulating Umbilical Hernia, apparently undescribed by authorities upon the subject, and perhaps new to Abdominal Diagnosis.*—Dr. H. R. STORER records (*Boston Med. and Surg. Journ.*, Feb. 25, 1864) the following interesting case: "Bridget McN., aged 40, was sent to the Woman's Hospital in the middle of November last by Dr. B. S. Shaw. She had been a patient at the Mass. Gen. Hospital, and her disease had there been very correctly suspected to be of malignant character. I will not enter into all the details of the case, although these in several respects are extremely interesting, inasmuch as they do not bear upon the special point for which I report the case. From the records of the Mass. Gen. Hospital, a full copy of which has been kindly sent to me by Dr. Shaw, it appears that the patient entered that institution on Aug. 14th, with ascites. She was tapped on the 30th of that month, eleven quarts of reddish, rather turbid serum being drawn off. No hepatic tumour was at that time to be discovered.

Shortly after her entrance at Pleasant St., I had occasion to again perform paracentesis, and it was repeated at intervals of a fortnight, some five or six times, until her death, which occurred on the 15th of the present month—upon each occasion two water-pails of bloody serum being removed, and upon each a tumour becoming more and more distinct a little to the right of the epigastrium, until it finally attained a size somewhat larger than a goose's egg. At the autopsy this proved to be the liver, enlarged and with extensive depositions of encephaloid matter, pronounced by Dr. Ellis of cancerous character. The

omentum, peritoneal surface and tract of the intestines were studded with carcinomatous deposits, and the uterus and ovaries, though never having given signs of functional or other disturbance, were degenerated into a common mass of disease, their relative limits being almost undistinguishable.

At the umbilicus there had always been noticed, since my first observation of the case, a circumscribed tumour of about the height and size of the last phalanx of the thumb, so entirely suggestive of an ordinary umbilical hernia that the possibility of its being otherwise was never suggested or entertained. The tumour remained of the same character at all times—both before and after tapping when the abdomen was distended and when it was empty—and was therefore supposed to be occasioned by old adhesions of some portion of the bowel, with perhaps partial strangulation, dating possibly from childhood; and therefore the absence of acute symptoms, hardly to be expected under such circumstances, was not considered unusual.

At the *post-mortem* examination, however, it proved that there was no loop of intestines in the neighbourhood of the umbilicus—that there was not and never had been any hernia at all. The tumour was well defined, localized, and entirely circumscribed. Upon incision by Dr. Ellis, it proved to be merely a deposition of softened carcinomatous matter in the substance of the umbilical tissue.

One case alone, at all approximating to this in character, had come to the knowledge of Ballard, that close student of the diseases of the abdomen. In the instance referred to, "the parietal peritoneum being infiltrated with colloid, the umbilicus presented a stretched and flattened appearance," an appearance entirely different from that now reported, and giving rise to no such mistaken opinion. Its occurrence as an element towards clearing up one at least of the very many possible obscurities of abdominal diagnosis, has seemed to me of sufficient importance to deserve being permanently recorded.

*Needles in the Body.*—To the many very curious cases of this kind recorded, Dr. F. D. LENTE, of Cold Spring, adds (*American Med. Times*, Dec. 26th, 1863) the following: He states that he was called to a girl, about seven years of age, who had told her mother five months previously that she had swallowed a pin. As no unpleasant symptoms supervened, the occurrence was soon forgotten, until a few days before Dr. Lente was called in, when she complained that on stooping down something pricked her in the belly; and upon feeling with her fingers she discovered what she supposed to be the forgotten pin; upon examining the spot, which was a few inches below the umbilicus, after some manipulation I managed to get the two ends of the substance between two fingers, and, on pressing one end outwards forcibly, the point of what proved to be a needle an inch and a half in length projected through the skin, and was drawn out by a pair of forceps. It was blackened and very brittle. No unpleasant consequences have resulted. Dr. Lente also states that he knew an old gentleman, who was engaged in a large mercantile business, who suffered for twenty or thirty years with "neuralgic pains," so they were called, in different parts of the body, for which but little relief was obtained, and from which his constitution suffered very much. One day, while writing in a private room of his establishment, and rubbing his knee, which was, at the time, the seat of one of his neuralgic attacks, suddenly, to his great surprise, the point of a needle popped out of the skin. Before endeavouring to pull it out, he called in some of his clerks to witness the phenomenon. He never afterwards suffered from any of his former attacks.

*American Medical Association.*—The 15th Annual Meeting of the "American Medical Association," will be held in the city of New York; commencing, Tuesday June 7th, 1864, at 10 o'clock A.M.

Proprietors of Medical Journals throughout the United States and the Territories are respectfully requested to insert the above notice in their issue.

GUIDO FURMAN, M. D., *Secretary*.

NEW YORK, March, 1864.

# INDEX.

## A.

Abdomen, treatment of gunshot and penetrating wounds of, 558  
 Abscess, exophthalmos from, 538  
 —, perinephritic, 259  
 Air in veins as a cause of death, 38  
 Albuminuria, perchloride of iron and ergot in, 522  
 Amaurosis, causes of, 265  
 —, produced by tobacco, 266  
 Amenorrhœa, surgical treatment of, 81  
 American Medical Association, 568  
 Amputation at hip-joint, 105  
 —, new mode of arresting venous hemorrhage after, 529  
 —, statistics of, 528  
 Amputations, major, for injuries, 361  
 Amygdalotomy, 255  
 Amyle, physiological properties of nitrite of, 510  
 Aneurism, subclavian, 562  
 —, traumatic, 108  
 Aniline as a poison, 274  
 Antisell on bile, 91  
 Antiseptic, quinia as a local, 507  
 —, carbolic acid as, 508  
 Aphonia, hysterical, 412  
 Apoplexy following railroad injury, 427  
 Arlt, exophthalmos in infant, 538  
 Armsby, ligature of subclavian artery, 564  
 Arteries, gunshot wounds of, 108  
 Ashhurst, apoplexy following railroad injury, 427  
 —, bed sores, 431  
 —, mammary tumour, 430  
 —, stricture of rectum, &c., 431  
 —, surgical cases, 142  
 Ashton on rectum and anus, notice of, 225  
 Astigmatism, 281  
 Atlas, partial luxation forward of, 535

## B.

Bader, corneal incisions with scissors for extraction of cataract, 539  
 Beale, colourless corpuscles of the blood, 505  
 Bean, horizontal position in bilious vomiting, 239  
 Beck, statistics of effects of *Secale cornutum*, 541  
 Bed-sores, 431  
 Bevan, fracture of odontoid process of axis, etc., 535  
 Beyran, polypus in male urethra, 533

## Bibliographical notices—

— American Hospitals for the Insane, 210, 473  
 — Ashton on Diseases of Rectum and Anus, 225  
 — Bibliographical Record, 504  
 — Bowman's Medical Chemistry, 226  
 — — Practical Chemistry, 502  
 — British Pharmacopœia, 503  
 — Bryant, Surgical Diseases of Children, 493  
 — Carson's Lectures of Materia Medica, 223  
 — Chew's Lectures on Medical Education, 498  
 — Ellis's Medical Formulary, 223  
 — Goldsmith's Report on Hospital Gangrene, 221  
 — Guy's Hospital Reports, 489  
 — Medico-chirurgical Transactions, 483  
 — O'Reilly, Connection between Mother and Fœtus in Utero, 500  
 — Smith on Human Entozoa, 503  
 — Storer's Dictionary of Solubilities, 220  
 — Thompson, Lithotomy and Lithotripsy, 224  
 — Transactions of Illinois State Medical Society, 467  
 — — of State Medical Society of Ohio, 471  
 — — of State Societies, 195, 467  
 — Treatment of Diphtheria, 218  
 Bibron's mixture, 132  
 Bichromate of potassa as a poison, 276  
 Bile, Antisell on, 91  
 —, relation of circulation of liver to secretion of, 228  
 Biliary secretion, persistence of, after ligation of vena porta, 229  
 Billious vomiting, influence of horizontal position on, 239  
 Bismuth and glycerine, local employment of, 231  
 Bladder, subpubic puncture of, 532  
 Blood, colourless corpuscles of, 505  
 Bouchut, pulmonary congestion in children, 245  
 Bouillaud, anomaly of cavities of heart, 229  
 Bouisson, ophthalmia from sulphuring vines, 268  
 Bowman's Medical Chemistry, notice of, 226

- Bowman's practical chemistry, notice of, 502  
 Brachial artery, ligature of, 145  
 Brainard, ligature of common iliac, 565  
 Braun, treatment of vomiting in pregnancy, 543  
 British Pharmacopœia, notice of, 503  
 Bronchial affections, tincture of larch in, 521  
 Bryant, Surgical Diseases of Children, notice of, 493  
 Bryce, new cause of unavoidable hemorrhage, 273  
 Bryson, epidemic pleuro-pneumonia, 518  
 Burns, dressing for, 130
- C.
- Callender, statistics of amputation, 528  
 Calvert, therapeutic properties of carbolic acid, 229  
 Carbolic acid as an antiseptic and as a local application, 508  
 ———, therapeutic properties of, 229  
 Carbonele, treatment of, 247  
 Carmichael, rectification of face presentation under chloroform, 272  
 Cataract, new methods of extracting, 261, 539  
 Cerebro-spinal meningitis, 413  
 Cervix uteri, hypertrophic elongation of, 17  
 Chancre, structure of, indurated, 584  
 Chapman, new mode of controlling circulation of blood in different parts of body, 235  
 Chassagne, persistence of secretion of bile after ligature of vena porta, 229  
 Chassagny, death following etherization, 550  
 Chatin, albuminuria, 522  
 Ohest, gunshot and penetrating wounds of, 558  
 Chevalier and Bicourt on bichromate of potassa as a poison, 276  
 Chevance, pneumatocele of skull, 258  
 Chew's lectures on medical education, notice of, 498  
 Chloroform, anomalous results from inhaling, 231  
 Choreic convulsion, 138  
 ———, Chapman on, notice of, 218  
 Cinchonina in intermittent fever, 396  
 Clarke, review of his researches on spinal cord and brain, 463  
 Coagula in pulmonary artery, sudden death from, 526  
 Common carotid, ligature of, 556  
 ——— iliac, ligature of, 565  
 Conjunctivitis, tannin in, 267  
 Contractility of healthy and paralyzed muscles by electricity, 227  
 Coote, cancerous infiltration of penis, 260  
 ———, ovary in hernial sac, 532  
 Corneal, incisions with scissors for extraction of cataract, 539  
 Cotton, effect of Surat, on the health of operatives, 547  
 Crimean campaign, review of medical and surgical history of, 433  
 Critchett's operation for staphylocoma, 263  
 Cysticerci in human body, 517
- D.
- Davanne, poisoning by cyanide of potassium, 278  
 Delirium tremens, treatment of, 237
- Delore, cysticerci in human body, 517  
 Deodorizer and disinfectant, iodine as, 546  
 Deroubaix, amygdalotomy, 255  
 Diabetes, diet in, 525  
 Diarrhea and dysentery, treatment of, 238  
 Dictionary of Solubilities, notice of, 220  
 Diet in diabetes, 525  
 Diphtheria, 240  
 ———, Chapman on, 218  
 ———, heart clot as a cause of death in, 305  
 ———, Meigs on, 148  
 ———, tracheotomy in, 253  
 Diphtheritic affection of lining membrane of uterus, 274  
 Diseased cattle, dangers of slaughtering, 548  
 Diuretic wine, 231  
 Durham, mucous cyst on epiglottis, 254
- E
- Ear, foreign bodies in, 537  
 Ellis's Medical Formulary, notice of, 223  
 Emerald green, effects of, upon paper stain-ers, 278  
 Epidemic diseases, practicability of arresting by antizymotic agents, 545  
 Epiglottis, mucous cyst on, 254  
 Erectile tumours of glans penis, 530  
 Ergot and perchloride of iron in albuminuria, 522  
 Etherization, death following, 550  
 Exhaustion of spinal cord, influence of, in inducing paraplegia, 241  
 Exophthalmos from abscess, 538
- F.
- Face presentation, rectification of, under chloroform, 272  
 Favus, carbolic acid as a local application in, 508  
 Fayrer, tetanus from wound of hand, section of median nerve, 256  
 Femoral artery, ligature of, 551  
 Fibro-plastic tumour of dura mater, 425  
 Fleming, male fern in tapeworm, 523  
 Forearm, injury of, 146  
 Foreign bodies in ear, 537  
 Fungus cerebri, 424
- G.
- Gamgee, dangers of slaughtering diseased cattle, 548  
 Gieseler, quinia as a local antiseptic, 507  
 Giraldès, sutures in operations for hare-lip, 258  
 Glans penis, erectile tumours of, 530  
 Goldsmith's Report on Hospital Gangrene, notice of, 221  
 Greene, air in veins as a cause of death, 38  
 Greenhow, tincture of larch in bronchial affections, 521  
 Gross, amputation at hip-joint, 105  
 Guersant, operative surgery in children, 251  
 Gunshot injuries, surgical notes of, 324, 333  
 ——— wound of penis and scrotum, 281
- H.
- Habershon, implication of gastric nerve in tumours, 526  
 Hæmaturia due to the presence of parasites, 515

Hæmœstatic, new, 231  
 Hamilton, hospital gangrene, 567  
 Hanbury, treatment of delirium tremens, 237  
 Hand, wound of, 142, 143  
 Harley, hæmaturia, 515  
 Heart, anomaly of cavities of, 229  
 ———— clot as a cause of death in diphtheria, 305  
 ————, osseous degeneration of valves of, 432  
 Hemorrhage, traumatic, 108  
 ————, new cause of unavoidable, 273  
 Hernia cerebri, 423  
 ————, operations for, on aged patients, 257  
 Hicks, combined external and internal version, 268  
 Hip-joint, amputation at, 105  
 Hospital gangrene, 330, 378, 566  
 Howard, treatment of gunshot and penetrating wounds of chest and abdomen, 558  
 Hughes, Bibron's mixture, 133  
 Hutchinson, fungus cerebri, 424  
 ————, hernia cerebri, 423  
 ————, hysterical loss of voice and hearing, 412  
 ————, osseous degeneration of valves of heart, 432  
 Hydrocele, radical cure of, 258  
 Hyoid bone, syphilitic caries of, 428  
 Hypertrophic elongation of cervix uteri, 17  
 Hypertrophy of os and cervix uteri, 284

## I.

Illinois State Medical Society, notice of transactions of, 467  
 Indiana State Medical Society, notice of transactions of, 208  
 Influenza, 65  
 Injury, railroad, 145  
 Intermittent fever, urine in, 245  
 ————, cinchona in, 396  
 Iodine as a deodorizer and disinfectant, 546

## J.

Jackson, therapeutical applications of permanganate of potash and ozone, 98  
 Janssens, new hæmœstatic, 231  
 Jobert de Lamballe, perinephritic abscess, 259  
 Jenks, spotted fever, 282

## K.

Keller, trichina spiralis disease, 352  
 Kentucky, Eastern, Asylum for Insane, notice of report of, 215  
 King, syphilitic caries of hyoid bone, 428  
 King's County, N. Y., Asylum, notice of report of, 216  
 Knee-joints, wounds of, 339

## L.

Lamy, poisonous properties of thallium, 280  
 Lane, traumatic tetanus, 567  
 Laro, tincture of, in chronic bronchitis, 521  
 Laurence, reflecting ophthalmoscope, 269  
 Leach, effect of Surat cotton on the health of operatives, 547  
 Leared, pain in stomach after ingestion of food, 519  
 Lente, needles in body, 568  
 Levick, influenza, 65

Levick, miasmatic typhoid fever, 404  
 Lidell, gunshot wounds of arteries, 108  
 ————, major amputations for injuries, 361  
 Liersch, toxicological experiments with turpentine, 279  
 Ligature of common carotid, 556  
 ———— of common iliac artery, 565  
 ———— of femoral artery, 551  
 ———— of left subclavian, common carotid and vertebral arteries, 562  
 ———— of subclavian artery, 564  
 Limbs, inequality of length of, 260  
 Liquor bismuthi, 511  
 Lithotomy in young persons, 555  
 Lithotripsy without injections, 531  
 Liver, relation of circulation in, to formation of bile, 228  
 Lobb, contractility of healthy and paralyzed muscles, 227  
 Longmore, treatment of gunshot and penetrating wounds of chest and abdomen, 558

## M.

Maine Insane Hospital Report, notice of, 479, 482  
 Maisonneuve, dressing of wounds, 258  
 ————, radical cure of hydrocele, 258  
 Male fern in tapeworm, 523  
 Mammary tumour, 430  
 Manganese, pain in stomach after ingestion of food, cured by, 519  
 Mapother, erectile tumours of glans penis, 530  
 ————, osteo-aneurism, 531  
 Marcé, senile dementia, 244  
 Martin, hypertrophy of os and cervix uteri, 284  
 Massachusetts State Lunatic Hospital at Worcester, notice of report of, 479

## at

Northampton, notice of report of, 481  
 Median nerve, section of, for tetanus, 256  
 Medico-Chirurgical Transactions, notice of, 483  
 Meigs, diphtheria, 148  
 ————, heart clot as a cause of death in diphtheria, 305  
 Mental Hygiene, review of, 151  
 Merrill, cerebro-spinal meningitis, 413  
 Miasmatic typhoid fever, 404  
 Michigan Asylum for Insane, notice of report of, 215  
 Montgomery, anomalous results from inhaling chloroform, 231  
 Mooren's method of extracting cataract, 262  
 Moses, surgical notes of gunshot injuries, 324  
 Mount Hope Institution for the Insane, notice of report of, 213  
 Muscles, contractility of healthy and paralyzed, 227

## N.

Needles in body, 568  
 Nerves, injuries of, 316  
 ————, passage of, across middle line of body, 343  
 Neubauer, Analysis of Urine, review of, 178  
 Neuralgic affections following injuries of nerves, 316  
 New York State Medical Society, notice of transactions of, 197

- New York State Lunatic Asylum, notice of report of, 473  
 — City Asylum, notice of report of, 216  
 Nicholson, urine in intermittent fever, 245  
 Nitrite of amyle, 510  
 Nitro-benzole as a poison, 274  
 Norris, gunshot wound of penis and scrotum, 281
- O.
- Odontoid process of axis, fracture of the, 535  
 Ohio State Medical Society, notice of transactions of, 195, 471  
 — (Central) Lunatic Asylum, notice of report, 475  
 — (Southern) Lunatic Asylum, notice of report, 476  
 Operative surgery in children, 251  
 Ophthalmia from sulphuring vines, 268  
 Ophthalmoscope, reflecting, 269  
 Opium in poisoning by *Datura stramonium*, 552  
 Ordonez, structure of indurated chancre of prepuce, 534  
 O'Reilly, nervous and vascular connection between mother and foetus, 500  
 Osteo-aneurism, 531  
 Ovariectomy, 419  
 Ovary in hernial sac, 532  
 Ozone, therapeutical applications of, 98
- P.
- Packard, dressing for burns, 130  
 Paracentesis for pleurisy, 135  
 Paraplegia, influence of exhaustion of spinal cord in producing, 241  
 Parasites, hamaturia from, 515  
 Parker, ligature of left subclavian, common carotid and vertebral arteries, 552  
 Patella, comminuted fracture of, 430  
 Penis, cancerous infiltration of, 260  
 Pennsylvania Hospital for the Insane, notice of report of, 210  
 — State Lunatic Hospital, notice of report of, 211  
 — Medical Society, notice of transactions of, 204  
 Perchloride of iron and ergot in albuminuria, 522  
 Perinephritic abscess, 259  
 Permanganate of potash, therapeutical applications of, 98  
 Phthisis, 429  
 —, red line on the gums in, 246  
 Pleard, red line on the gums in phthisis, 246  
 Pleuro-pneumonia, epidemic, 518  
 Pneumatocele of skull, 258  
 Pneumogastric nerve, implication of, in tumours, 526  
 Poisoning by cyanide of potassium, 278  
 Poisons, nitrobenzole, 274  
 —, aniline, 274  
 —, bichromate of potassa, 276  
 —, thallium, 280  
 —, by *Datura stramonium*, 552  
 Polypus in male urethra, 533  
 Pope, ligature of common carotid, 556  
 Porter, chronic convulsion, 138  
 — pleurisy from gunshot wound, 135
- Porter, new mode of arresting venous hemorrhage after amputation, 529  
 Pott's abscess of brain, 414  
 Pregnancy, vomiting of, 543  
 Price, direct communication between bladder and rectum, 247  
 Pritchard, treatment of carbuncle, 247  
 Progressive locomotor ataxia, 164  
 Pulmonary congestion in children, 245
- Q.
- Quinia as a local antiseptic, 507
- R.
- Raphael, case of Pott's abscess of brain, 414  
 Ray's mental hygiene, review of, 151  
 Rectum and bladder, direct communication between, 247  
 —, stricture of, 431  
 Reeve, ovariectomy, 419  
 Renard, sulphur in tendinous rheumatism, 522  
 Reviews—  
 — Analysis of the Urine, 178  
 — Histology of the Spinal Cord, 463  
 — Medical and Surgical History of the Crimean Campaign, 433  
 — Mental Hygiene, 151  
 — Progressive Locomotor Ataxia, 164  
 Rheumatism, tendinous, sulphur in, 522  
 Richardson, iodine as a deodorizer and disinfectant, 546  
 —, physiological properties of nitrite of amyle, 510  
 Ridgewood, disinfecting powder, 287  
 Robinson, arrest of epidemic diseases by anti-symotic agents, 545  
 Russel, influence of exhaustion of spinal cord in inducing paraplegia, 241
- S.
- Sarraconia purpurea, 510  
 Scalp, wound of, 143  
 Schiff, relation of circulation in liver to secretion of bile, 225  
 Secale cornutum, statistics of effects of, 541  
 Senile dementia, 244  
 Sheraton, tannin in conjunctivitis, 267  
 Silver wire, divided tendo Achillis united by, 566  
 Simmons, divided tendo Achillis united by silver wire, 566  
 Simpson, diphtheritic affection of lining membrane of uterus, 274  
 Skeg, treatment of varicose veins, 530  
 Skoda, treatment of diarrhoea and dysentery, 238  
 Smith, diet in diabetes, 525  
 —, on human entozoa, 503  
 —, operations for hernia on aged patients, 257  
 —, tracheotomy in children, 253  
 Socquet, albuminuria, 522  
 Speir, source of yellow colour of skin in yellow fever, 286  
 Spinal cord, influence of exhaustion of, in inducing paraplegia, 241  
 Spotted fever, 282  
 Staphylocoma, Critchett's operation for, 263  
 Statistics of amputation, 528



Stomach, pain in, after ingestion of food, 519  
Storer, surgical treatment of amenorrhœa, 81  
——, tumour of umbilicus, 567

Storer's Dictionary of Solubilities, notice of, 220

Strangulated hernia in aged patients, operations for, 257

Struthers, variety of the muscles of the axis, atlas, and occipital bone, 506

Styptic, turpentine as, 510

Subclavian artery, ligature of, 564

Sudden death from obstruction of the pulmonary artery by coagula, 526

Sulphate of copper in pencils, 234

Sulphur in tendinous rheumatism, 522

Supra-pubic fistula of bladder, 428

Surat cotton, effects of, on the health of operatives, 547

Sutures in operations for hair-lip, 258

Syphilitic caries of hyoid bone, 428

T.

Tannin in conjunctivitis, 267

Tapeworm, male fern in, 523

Tendo Achillis, divided, united by silver wire, 566

Tetanus from wound of hand, 256

——, traumatic, 567

Thallium, poisonous properties of, 280

Thompson, lithotomy and lithotripsy, notice of, 224

Thomson, hospital gangrene, 378

——, lithotripsy without injections, 531

Tichborne, liquor bismuthi, 511

Tinctura boleti laricis Canadensis, 510

Tracheotomy in diphtheria, 253

Trichina disease, 352, 358, 512

Trichiniasis in Germany, 512

Trousseau, diuretic wine, 231

Turner, cinchonia in intermittent fever, 396  
——, poisoning by *Datura stramonium*, 552

Turpentine as a styptic, 510

——, toxicological experiments with, 279

Tyson, comminuted fracture of patella, 430

U.

Umbilicus, tumour of, 567

Urethra, polyposis in, 533

Urinary bladder, supra-pubic fistula of, 428

Urine in intermittent fever, 245

V.

Varicose veins, treatment of, 530

Venous hemorrhage after amputation, new mode of arresting, 529

*Veratrum viride*, 509

Vermont Asylum, notice of report of, 478

Version, combined external and internal, 269

Vogel, semeiology of human urine, review of, 194

Voilemier, subpubic puncture of bladder, 531

Voltolini, foreign bodies in ear, 537

Vomiting of pregnancy, treatment of, 543

W.

Waldau's method of extracting cataract, 261

Wales, ligature of femoral artery, 551

——, spotted fever, 22

Walker on diphtheria, 240

Warren, hypertrophic elongation of cervix uteri, 17

——, neuralgic affections following injuries of nerves, 316

—— on lithotomy in young persons, 555

Watson, carbolic acid as an antiseptic and local application in favus, 508

——, *Sarracenia purpurea*, 510

——, tinctura boleti laricis Canadensis, 510

——, *Veratrum viride*, 509

Western Pennsylvania Hospital for the Insane, notice of report of, 212

Wilks, turpentine as a styptic, 510

Wood, fibro-plastic tumour of dura mater, 425

——, phthisis, 429

——, supra-pubic fistula of bladder, 426

Wordsworth, amaurosis produced by tobacco, 266

Wounds, dressing of, 258

Wyman, passage of nerves across the middle line of the body, 343

Y.

Yellow colour of skin in yellow fever, source of, 286

**GRADUATES OF JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA,  
MARCH, 1863.**

At a Public Commencement, held on the 10th of March, 1864, the degree of Doctor of Medicine was conferred on the following gentlemen by the Hon. EDWARD KING, LL. D., President of the Institution; after which an Exhortation to the Graduates was delivered by Prof. DUNGLISON.

NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Andrews, T. Hollingsworth	Pennsylvania.	Erysipelas.
Ashton, Asa S.	Ohio.	Science and Practice of Medicine.
Barr, David Miller	Maryland.	Hemorrhagic Labours.
Bartles, William H.	New Jersey.	Habit and Diseases.
Bell, James (M.D.)	Ohio.	Diphtheritis.
Bell, Joseph G.	Maryland.	Pneumonia.
Bese, Frederick	Pennsylvania.	Cynanche Trachealis.
Blanton, Carter (M.D.)	Kentucky.	Diseases of the Teeth and their Sequela.
Boyer, Samuel S.	Pennsylvania.	Gonorrhœa.
Brown, William A.	Ohio.	Nervous Fluid and the Antidotes of Narcosis.
Brownfield, B. F.	Pennsylvania.	Primary Syphilis.
Buckner, Garrett Davis	Kentucky.	Gunshot Wounds.
Burden, Jesse R.	Pennsylvania.	Scrofula.
Butcher, Samuel	New Jersey.	Intermittent Fever.
Caldwell, Daniel G.	Pennsylvania.	Enteric Fever.
Caldwell, Wm. Spencer	Illinois.	Medical Sectarianism.
Campbell, William H.	Missouri.	Enteric Fever.
Cary, Ezra H.	Pennsylvania.	Enteric Fever.
Case, James B.	Pennsylvania.	Conception and Gestation.
Christie, William	New Brunswick.	Coxalgia.
Christopher, Howard L.	Kentucky.	Typhoid Fever.
Clinkinbeard, Allen K.	Kentucky.	Dysentery.
Clements, Christopher C.	Kentucky.	Ipecacuanha.
Davis, Harden A.	Indiana.	Iron and its Compounds.
Dean, John W. (M.D.)	Indiana.	Ulceration of the Os Uteri.
De Ford, Harry S.	Pennsylvania.	The Uterus.
Dodge, Wm. Campbell, Jr.	Vermont.	Diphtheria.
Dougherty, J. Drake	Kentucky.	Inflammation.
Dundor, Adam B. (M.D.)	Pennsylvania.	Dyspepsia.
Edwards, Thomas J. (M.D.)	California.	Intellection.
Engelman, David	Pennsylvania.	Dysentery.
Ferguson, Lewis L. (M.D.)	Kentucky.	Spermatorrhœa.
Forsythe, Matthew Leander	Kentucky.	Pericarditis, Symptoms and Physical Signs.
Freas, William B.	Pennsylvania.	Scarlatina.
Fuller, Amos B.	Ohio.	Dysentery.
Geddes, Clarence	Pennsylvania.	Discovery of the Circulation.
Gemmill, Robert B.	Pennsylvania.	Variola.
Gibson, Lycurgus	Pennsylvania.	Inflammation.
Gibbs, Henry L.	Pennsylvania.	Diagnosis.
Gillespie, Robert	Pennsylvania.	Typhoid Fever.
Gray, John W.	Indiana.	Erysipelas of the Fauces.
Grimes, Louis A.	Ohio.	Stricture of the Urethra.
Gumbes, Charles W.	Pennsylvania.	Trifolium in Fœno.
Hill, Walter B.	Kentucky.	Opium.
Hittle, Benjamin F.	Pennsylvania.	Diphtheria.
Hogendobler, Israel	Pennsylvania.	Signs of Pregnancy.
Howes, Daniel L.	Canada West.	Measles.
Jack, William	Pennsylvania.	Respiration.
Jackson, John	Pennsylvania.	Acute Rheumatism.
Jones, James	Maryland.	Pneumonia.
Jordy, George H.	Pennsylvania.	Hygea.
Keeley, Jerome	Pennsylvania.	Typhoid Fever.
Krecker, Frederick	Pennsylvania.	Diphtheria.
Lapsley, John B.	Kentucky.	Physical Signs and Diagnosis of Pneumonitis.

NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Leaman, Brainerd	Pennsylvania.	Enteric Fever.
Leaman, Henry	Pennsylvania.	Conservatism in Medicine.
Leighton, Walter H.	Massachusetts.	Intermittent Fever.
Lineaweaver, Simeon T.	Pennsylvania.	Bromine in Hospital Gangrene and Phlegmonous Erysipelas.
Lippincott, Franklin B.	New Jersey.	Hospital Gangrene.
Lippincott, Henry	Nova Scotia.	Rheumatism.
Lowndes, Charles T.	W. Virginia.	Pneumonia.
Martin, Edwin	Pennsylvania	Gunshot Wounds.
Massey, Isaac	Pennsylvania.	Icterus.
Maupin, William T.	Missouri.	Alcohol.
Maxwell, J. Gordon, Jr.	Pennsylvania.	Clinical Surgery.
McArthur, John A.	Pennsylvania.	Compound Fractures of the Thigh.
McClure, William Wallace	Pennsylvania.	Cinchona.
McCormick, J. F.	Pennsylvania	Tinctura Ferri Chloridi.
McCoy, Henry W.	Illinois.	Emetics.
McIntyre, John H.	Indiana.	Scurvy.
McKenzie, George I.	Nova Scotia.	Acute Pneumonia.
McLaughlin, James A.	Massachusetts.	Typhoid Fever.
Miller, David P.	Pennsylvania.	Intermittent Fever.
Miller, Lloyd T. (M.D.)	Missouri.	Santonin.
Miller, Robert	Kentucky.	Dislocation of the Femur.
Millikan, Robert H.	Ohio.	Syphilides.
Mullen, Henry	Pennsylvania.	Scarlatina.
Nelson, George W. (M.D.)	Missouri.	Treatment of Diphtheria.
Newcomer, Joseph W.	Pennsylvania.	Aneurism.
Parker, William S.	Ohio.	Phthisis Pulmonalis.
Pennsyl, Philip H.	Pennsylvania.	Phthisis Pulmonalis.
Pitcher, Stewart C.	Indiana.	Hospital Gangrene.
Phillips, Edwin	Illinois.	Intermittent Fever.
Phillips, Thomas H.	Pennsylvania.	Acute Dysentery.
Price, William H.	Indiana.	Sulphate of Quinia.
Pritchett, James W.	Kentucky.	Inflammation of the Cervix Uteri.
Raudenbush, Abraham S.	Pennsylvania.	Diospyros Virginiana.
Reed, T. J.	Canada West.	Typhoid Fever.
Richardson, Newton M.	Pennsylvania.	Pathology of Asthma.
Richardson, William	Canada West.	Intermittent Fever.
Ridgway, Thomas Edwin	Pennsylvania.	Chronic Gastritis.
Seagrave, Joseph S.	New Jersey.	Chemistry applied to Medicine.
Senseman, John	Ohio.	Enteric Fever.
Sharples, Abram	Pennsylvania.	Two Medical Cases.
Shew, Abraham Marvin	New York.	Mental Derangement.
Simon, William I.	Pennsylvania.	Aneurism.
Smith, Henry A. M.	Pennsylvania.	Scarlatina.
Smith, Jacob Jontz	Indiana.	Parental Influence on the Embryo.
Smith, John R.	Illinois.	Retention of Urine.
Steckel, Alfred P.	Pennsylvania.	Pleurisy.
Stewart, Joseph F.	Pennsylvania.	Infantile Remittent Fever.
Stockton, James Clark	Pennsylvania.	The Uterus and its Functions.
Stokes, J. Spencer	New Jersey.	Acute Rheumatism.
Sudler, William T.	Delaware.	Intermittent Fever.
Taylor, Robert W.	Kentucky.	Epidemic Erysipelas.
Thompson, James F.	Pennsylvania.	Physiology of Digestion.
Thomson, A. Agnew	Pennsylvania.	Rest and its Therapeutical Influence.
Thomson, Benjamin F.	Kentucky.	Pneumonia.
Tucker, James E.	Kentucky.	The Medical Student.
Underwood, Warren J.	Pennsylvania.	Circulation of the Blood.
Van Kirk, Theophilus R.	Pennsylvania.	Diphtheria.
Vannuys, D. H.	Indiana.	Pseudo-membranous Laryngitis.
Verner, Chittick	Pennsylvania.	Diabetes.
Wallace, James P.	Indiana.	Immediate and Remote Effects of In- juries of the Brain.
Weaver, Charles H.	New York.	Pyæmia.

NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Webster, John R. (M.D.)	Illinois.	Pneumonia.
West, Theodore S.	Virginia.	The Typhus Group of Fevers.
White, Elisha M.	Massachusetts.	Diarrhoea in the Army.
Wiley, Charles	New Jersey.	Diphtheria.
Willis, Samuel W.	Kentucky.	Cholera Maligna.
Witman, Harrison T.	Pennsylvania.	Veratrum Viride.
Woods, William S.	Missouri.	Inflammation.
Woodward, Charles E.	New Jersey.	Sarracenia Purpurea.
Worthington, William E.	Missouri.	Intermittent Fever.

Of the above, there are from—

Pennsylvania . . . .	54	Canada West . . . .	3
Kentucky . . . . .	16	New York . . . . .	2
Indiana . . . . .	9	Nova Scotia . . . . .	2
Ohio . . . . .	8	Vermont . . . . .	1
New Jersey . . . . .	7	Delaware . . . . .	1
Missouri . . . . .	6	California . . . . .	1
Illinois . . . . .	5	Western Virginia . . . .	1
Maryland . . . . .	3	Virginia . . . . .	1
Massachusetts . . . .	3	New Brunswick . . . .	1

124

## HARVARD UNIVERSITY.

### SUMMER SESSION OF THE MEDICAL DEPARTMENT.

THE Annual Course of Summer Instruction in the Medical Department of Harvard University will commence at the Massachusetts Medical College, in North Grove Street, Boston, on Monday, March 14, 1864, and continue till November.

Clinical, Medical and Surgical Instruction will be given at the Massachusetts General Hospital, adjoining the College.

Recitations from approved text-books will be held daily during the session at the College, upon all branches necessary to a medical education. Occasional lectures are also given, and demonstrations, illustrated by the Museums of the College.

During the Summer Session, instruction is given by lectures at Cambridge, on Botany, by Prof Gray; on Comparative Anatomy, by Prof. Wyman; on Zoology, by Prof. Agassiz; on Acoustics and Optics, by Prof. Lovering. To these lectures, students of the Summer Session will be admitted without extra charge.

Good Board can be obtained at \$3 50 or \$5 00 per week.

Fees for the Summer Term (which must be paid in advance), \$100, without extra charge for Matriculation, Hospital, Library or Dissections; for six months, \$100; for three months, \$50.

D. HUMPHREYS STORER, M. D., Professor of Obstetrics and Medical Jurisprudence.

JOHN B. S. JACKSON, M. D., Professor of Morbid Anatomy.

HENRY I. BOWDITCH, M. D., Professor of Clinical Medicine.

OLIVER W. HOLMES, M. D., Professor of Anatomy and Physiology.

GEORGE C. SHATTUCK, M. D., Hersey Professor of the Theory and Practice of Medicine.

HENRY J. BIGELOW, M. D., Professor of Surgery and Clinical Surgery.

JOHN BACON, M. D., Professor of Chemistry.

EDWARD H. CLARKE, M. D., Professor of Materia Medica.

DAVID W. CHEEVER, M. D., Demonstrator.

WM. E. COALE, M. D., Assistant in Theory and Practice.

FRANCIS MINOT, M. D., Assistant in Theory and Practice.

RICHARD M. HODGES, M. D., Assistant in Surgery.

CALVIN ELLIS, M. D., Assistant in Morbid Anatomy.

J. NELSON BORLAND, M. D., Assistant in Clinical Medicine.

JAMES C. WHITE, M. D., Assistant in Chemistry.

FITCH E. OLIVER, M. D., Assistant in Materia Medica.

HORATIO R. STORER, M. D., Assistant in Obstetrics.

Tickets to the Session must be procured before students will be admitted to the Course.

D. HUMPHREYS STORER, Dean of the Faculty,  
No. 182 Tremont Street, Boston.

Circulars can be obtained gratis, upon application to David Clapp, Medical and Surgical Journal Office, over 334 Washington Street, Boston. Jan. 1st, 1864.

Van. and April.]

# BLANCHARD & LEA'S MEDICAL AND SURGICAL PUBLICATIONS.

## TO THE READERS OF THE MEDICAL JOURNAL.

The greatly enhanced cost of materials and labor has at length obliged us to make a small increase in the price of some of our books, and we have been forced in a few instances to change the style of binding from leather to cloth, in consequence of the increased difficulty of procuring a full supply of the superior quality of leather which we require for our publications. We have made these changes with reluctance, and can only hope that we may not be forced to further modifications by a continued increase of cost.

For the present, therefore, the prices on this Catalogue are those at which our books can generally be furnished by booksellers, who can readily procure for their customers any which they may not have on hand. Where access to bookstores is not convenient, we will forward them at these prices, *free by mail*, to any post office in the United States. In all cases the amount must accompany the order, as we open accounts only with dealers; we assume no risks of the mail, either on the money or the books, and we can supply nothing but our own publications. Gentlemen desirous of purchasing will, therefore, find it more advantageous to deal with the nearest bookseller whenever practicable, or to send orders through their merchants visiting the large cities.

BLANCHARD & LEA.

PHILADELPHIA, April, 1864.

\* \* We have recently issued an ILLUSTRATED CATALOGUE of Medical and Scientific Publications, forming an octavo pamphlet of 80 large pages, containing specimens of illustrations, notices of the medical press, &c. &c. It has been prepared without regard to expense, and will be found one of the handsomest specimens of typographical execution as yet presented in this country. Copies will be sent to any address, by mail, free of postage, on receipt of nine cents in stamps.

Catalogues of our numerous publications in miscellaneous and educational literature forwarded on application.

The attention of physicians is especially solicited to the following important new works and new editions, just issued or nearly ready:—

	See page	
Bowman's Medical Chemistry, a new edition, . . . . .	580	
Bowman's Practical Chemistry, a new edition, . . . . .	580	
Bennett on the Uterus, sixth edition, . . . . .	580	
Bumstead on Venereal, second edition, . . . . .	581	
Barclay on Medical Diagnosis, third edition, . . . . .	591	
Brande and Taylor's Chemistry, . . . . .	582	
Dalton's Human Physiology, 3d edition, . . . . .	587	
Douglison's Medical Dictionary, a revised edition, . . . . .	588	
Ellis' Formulary, new edition, . . . . .	589	
Erichsen's System of Surgery, a revised edition, . . . . .	600	
Flint on the Heart, . . . . .	600	
Gross's System of Surgery, second edition, . . . . .	592	
Gray's Anatomy, Descriptive and Surgical, 2d edition, . . . . .	593	
Hamilton on Fractures and Dislocations, second edition, . . . . .	594	
Hodge's Midwifery, . . . . .	595	
Meigs' Obstetrics, fourth edition, . . . . .	597	
Parrish's Practical Pharmacy, a new edition, . . . . .	601	
Stillé's Therapeutics and Materia Medica, . . . . .	603	
Simpson on Diseases of Women, . . . . .	603	
Salter on Asthma, . . . . .	603	
Sargent's Minor Surgery, new edition, . . . . .	604	
Watson's Practice of Physic, . . . . .	606	
Wilson on the Skin, first edition, . . . . .	607	
West on Diseases of Women, second edition, . . . . .	608	

NO INCREASE OF PRICE.

**TWO MEDICAL PERIODICALS, FREE OF POSTAGE,**

Containing about Fifteen Hundred large octavo pages,

**FOR FIVE DOLLARS PER ANNUM.**

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, subject to postage, when not paid for in advance, . . . . . \$5 00  
THE MEDICAL NEWS AND LIBRARY, invariably in advance, . . . . . 1 00  
or, BOTH PERIODICALS mailed, FREE OF POSTAGE (as long as the existing

It will be observed that notwithstanding the great increase in the cost of production, the subscription price has been maintained at the former very moderate rate, which has long rendered them among the

### CHEAPEST OF AMERICAN MEDICAL PERIODICALS.

The publishers trust that this course will be responded to by the profession in a liberal increment to the subscription list.

## THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES,

EDITED BY ISAAC HAYS, M. D.,

is published Quarterly, on the first of January, April, July, and October. Each number contains about two hundred and seventy large octavo pages, handsomely and appropriately illustrated, wherever necessary. It has now been issued regularly for more than forty years, and it has been under the control of the present editor for more than a quarter of a century. Throughout this long period, it has maintained its position in the highest rank of medical periodicals both at home and abroad, and has received the cordial support of the entire profession in this country. Its list of Collaborators will be found to contain a large number of the most distinguished names of the profession in every section of the United States, rendering the department devoted to

### ORIGINAL COMMUNICATIONS

full of varied and important matter, of great interest to all practitioners.

As the aim of the Journal, however, is to combine the advantages presented by all the different varieties of periodicals, in its

### REVIEW DEPARTMENT

will be found extended and impartial reviews of all important new works, presenting subjects of novelty and interest, together with very numerous

### BIBLIOGRAPHICAL NOTICES,

including nearly all the medical publications of the day, both in this country and Great Britain, with a choice selection of the more important continental works. This is followed by the

### QUARTERLY SUMMARY,

being a very full and complete abstract, methodically arranged, of the

### IMPROVEMENTS AND DISCOVERIES IN THE MEDICAL SCIENCES.

This department of the Journal, so important to the practising physician, is the object of especial care on the part of the editor. It is classified and arranged under different heads, thus facilitating the researches of the reader in pursuit of particular subjects, and will be found to present a very full and accurate digest of all observations, discoveries, and inventions recorded in every branch of medical science. The very extensive arrangements of the publishers are such as to afford to the editor complete materials for this purpose, as he not only regularly receives

### ALL THE AMERICAN MEDICAL AND SCIENTIFIC PERIODICALS,

but also twenty or thirty of the more important Journals issued in Great Britain and on the Continent, thus enabling him to present in a convenient compass a thorough and complete abstract of everything interesting or important to the physician occurring in any part of the civilized world.

To their old subscribers, many of whom have been on their list for twenty or thirty years, the publishers feel that no promises for the future are necessary; but those who may desire for the first time to subscribe, can rest assured that no exertion will be spared to maintain the Journal in the high position which it has occupied for so long a period.

By reference to the terms it will be seen that, in addition to this large amount of valuable and practical information on every branch of medical science, the subscriber, by paying in advance, becomes entitled, without further charge, to

## THE MEDICAL NEWS AND LIBRARY.

a monthly periodical of thirty-two large octavo pages. Its "NEWS DEPARTMENT" presents the current information of the day, while the "LIBRARY DEPARTMENT" is devoted to presenting standard works on various branches of medicine. Within a few years, subscribers have thus received, without expense, many works of the highest character and practical value, such as "Watson's Practice," "Todd and Bowman's Physiology," "Maigne's Surgery," "West on Children," "West on Females, Part I.," "Habershon on the Alimentary Canal," "Simpson on Females," &c.

The work selected for the year 1864, commencing in the number for January, is

### CONSUMPTION; ITS EARLY AND REMEDIABLE STAGES.

BY EDWARD SMITH, M. D.,

Assistant Physician to the Brompton Consumption Hospital, &c.

The special experience of the author in the treatment of this disease invests his work with a practical authority which cannot but render it satisfactory to subscribers.

It will thus be seen that for the small sum of FIVE DOLLARS, paid in advance, the subscriber will obtain a Quarterly and a Monthly periodical,

### EMBRACING ABOUT FIFTEEN HUNDRED LARGE OCTAVO PAGES.

Those subscribers who do not pay in advance will bear in mind that their subscription of Five Dollars will entitle them to the Journal only, without the News, and that they will be at the expense of their own postage on the receipt of each number. The advantage of a remittance when ordering the Journal will thus be apparent.

Remittances of subscriptions can be mailed at our risk, when a certificate is taken from the Postmaster that the money is duly inclosed and forwarded.

**ASHTON (T. J.),**

Sergeon to the Blenheim Dispensary, &amp;c.

**ON THE DISEASES, INJURIES, AND MALFORMATIONS OF THE RECTUM AND ANUS;** with remarks on Habitual Constipation. From the third and enlarged London edition. With handsome illustrations. In one very beautifully printed octavo volume, of about 300 pages, extra cloth. \$2 00.

The most complete one we possess on the subject. *Medico-Chirurgical Review.*

We are satisfied, after a careful examination of the volume, and a comparison of its contents with those of its leading predecessors and contemporaries, that the best way for the reader to avail himself of

the excellent advice given in the concluding paragraph above, would be to provide himself with a copy of the book from which it has been taken, and diligently to con its instructive pages. They may secure to him many a triumph and fervent blessing.—*Am. Journal Med. Sciences.*

**ALLEN (J. M.), M. D.,**

Professor of Anatomy in the Pennsylvania Medical College, &amp;c.

**THE PRACTICAL ANATOMIST;** or, The Student's Guide in the Dissecting-ROOM. With 286 illustrations. In one handsome royal 12mo. volume, of over 600 pages, extra cloth. \$2 25.

We believe it to be one of the most useful works upon the subject ever written. It is handsomely illustrated, well printed, and will be found of convenient size for use in the dissecting-room.—*Med. Examiner.*

However valuable may be the "Dissector's Guides" which we, of late, have had occasion to

notice, we feel confident that the work of Dr. Allen is superior to any of them. We believe with the author, that none is so fully illustrated as this, and the arrangement of the work is such as to facilitate the labors of the student. We most cordially recommend it to their attention.—*Western Lancet.*

**ANATOMICAL ATLAS.**

By Professors H. H. SMITH and W. E. HORNER, of the University of Pennsylvania. 1 vol. 8vo., extra cloth, with nearly 650 illustrations. See SMITH, p. 26.

**ABEL (F. A.), F. C. S. AND C. L. BLOXAM.**

**HANDBOOK OF CHEMISTRY,** Theoretical, Practical, and Technical; with a Recommendatory Preface by Dr. HOFMANN. In one large octavo volume, extra cloth, of 662 pages, with illustrations. \$3 25.

**ASHWELL (SAMUEL), M. D.,**

Obstetric Physician and Lecturer to Guy's Hospital, London.

**A PRACTICAL TREATISE ON THE DISEASES PECULIAR TO WOMEN.**

Illustrated by Cases derived from Hospital and Private Practice. Third American, from the Third and revised London edition. In one octavo volume, extra cloth, of 528 pages. \$3 00.

The most useful practical work on the subject in the English language.—*Boston Med. and Surg. Journal.*

The most able, and certainly the most standard and practical, work on female diseases that we have yet seen.—*Medico-Chirurgical Review.*

**ARNOTT (NEILL), M. D.**

**ELEMENTS OF PHYSICS;** or Natural Philosophy, General and Medical. Written for universal use, in plain or non-technical language. A new edition, by ISAAC HAYS, M. D. Complete in one octavo volume, leather, of 484 pages, with about two hundred illustrations. \$2 50.

**BIRD (GOLDING), A. M., M. D., &c.**

**URINARY DEPOSITS: THEIR DIAGNOSIS, PATHOLOGY, AND THERAPEUTICAL INDICATIONS.** Edited by EDMUND LLOYD BIRKETT, M. D. A new American, from the last and enlarged London edition. With eighty illustrations on wood. In one handsome octavo volume, of about 400 pages, extra cloth. \$2 75. (*Just Ready.*)

It can scarcely be necessary for us to say anything of the merits of this well-known Treatise, which so admirably brings into practical application the results of those microscopical and chemical researches regarding the physiology and pathology of the urinary secretion, which have contributed so much to the increase of our diagnostic powers, and

to the extension and satisfactory employment of our therapeutic resources. In the preparation of this new edition of his work, it is obvious that Dr. Golding Bird has spared no pains to render it a faithful representation of the present state of scientific knowledge on the subject it embraces.—*British and Foreign Med.-Chir. Review.*

**BENNETT (J. HUGHES), M. D., F. R. S. E.,**

Professor of Clinical Medicine in the University of Edinburgh, &amp;c.

**THE PATHOLOGY AND TREATMENT OF PULMONARY TUBERCULOSIS,** and on the Local Medication of Pharyngeal and Laryngeal Diseases frequently mistaken for or associated with, Phthisis. One vol. 8vo., extra cloth, with wood-cuts. pp. 130. \$1 25.

**BARLOW (GEORGE H.), M. D.**

Physician to Guy's Hospital, London, &amp;c.

**A MANUAL OF THE PRACTICE OF MEDICINE.** With Additions by D. F. CONDEX, M. D., author of "A Practical Treatise on Diseases of Children," &c. In one handsome octavo volume, extra cloth, of over 600 pages. \$2 75.

We recommend Dr. Barlow's Manual in the warmest manner as a most valuable vade-mecum. We

found it clear, concise, practical, and sound.—*Boston Med. and Surg. Journal.*

BUDD (GEORGE), M. D., F. R. S.,

Professor of Medicine in King's College, London.

**ON DISEASES OF THE LIVER.** Third American, from the third and enlarged London edition. In one very handsome octavo volume, extra cloth, with four beautifully colored plates, and numerous wood-cuts. pp. 500. \$3 00.

Has fairly established for itself a place among the classical medical literature of England.—*British and Foreign Medico-Chir. Review.*

Dr. Budd's Treatise on Diseases of the Liver is now a standard work in Medical literature, and during the intervals which have elapsed between the successive editions, the author has incorporated into

the text the most striking novelties which have characterized the recent progress of hepatic physiology and pathology: so that although the size of the book is not perceptibly changed, the history of liver diseases is made more complete, and is kept upon a level with the progress of modern science. It is the best work on Diseases of the Liver in any language.—*London Med. Times and Gazette.*

BUCKNILL (J. C.), M. D.,

AND DANIEL H. TUKE, M. D.,

Medical Superintendent of the Devon Lunatic Asylum. Visiting Medical Officer to the York Retreat

**A MANUAL OF PSYCHOLOGICAL MEDICINE;** containing the History, Nosology, Description, Statistics, Diagnosis, Pathology, and Treatment of INSANITY. With a Plate. In one handsome octavo volume, of 536 pages, extra cloth. \$3 00.

The increase of mental disease in its various forms, and the difficult questions to which it is constantly giving rise, render the subject one of daily enhanced interest, requiring on the part of the physician a constantly greater familiarity with this, the most perplexing branch of his profession. Yet until the appearance of the present volume there has been for some years no work accessible in this country, presenting the results of recent investigations in the Diagnosis and Prognosis of Insanity, and the greatly improved methods of treatment which have done so much in alleviating the condition or restoring the health of the insane.

BENNETT (HENRY), M. D.

**A PRACTICAL TREATISE ON INFLAMMATION OF THE UTERUS, ITS CERVIX AND APPENDAGES,** and on its connection with Uterine Disease. Sixth American, from the fourth and revised English edition. In one octavo volume, of about 500 pages, extra cloth. \$3 50. (*Just Ready.*)

BROWN (ISAAC BAKER),

Surgeon-Accoucheur to St. Mary's Hospital, &amp;c.

**ON SOME DISEASES OF WOMEN ADMITTING OF SURGICAL TREATMENT.** With handsome illustrations. One vol. 8vo., extra cloth, pp. 276. \$1 60.

Mr. Brown has earned for himself a high reputation in the operative treatment of sundry diseases and injuries to which females are peculiarly subject. We can truly say of his work that it is an important addition to obstetrical literature. The operative suggestions and contrivances which Mr. Brown describes, exhibit much practical sagacity and skill,

and merit the careful attention of every surgeon-accoucheur.—*Association Journal.*

We have no hesitation in recommending this book to the careful attention of all surgeons who make female complaints a part of their study and practice.—*Dublin Quarterly Journal.*

BOWMAN (JOHN E.), M. D.

**PRACTICAL HANDBOOK OF MEDICAL CHEMISTRY.** Edited by C.

L. BLOXAM. Third American, from the fourth and revised English Edition. In one neat volume, royal 12mo., extra cloth, with numerous illustrations. pp. 351. \$1 75. (*Now Ready, May, 1883.*)

Of this well-known handbook we may say that it retains all its old simplicity and clearness of arrangement and description, whilst it has received from the able editor those finishing touches which the progress of chemistry has rendered necessary.—*London Med. Times and Gazette*, Nov. 29, 1882.

Nor is anything hurried over, anything shirked; open the book where you will, you find the same careful treatment of the subject manifested, and the best process for the attainment of the particular ob-

ject in view lucidly detailed and explained. And this new edition is not merely a reprint of the last. With a laudable desire to keep the book up to the scientific mark of the present age, every improvement in analytical method has been introduced. In conclusion, we would only say that, familiar from long acquaintance with each page of the former issues of this little book, we gladly place beside them another presenting so many acceptable improvements and additions.—*Dublin Medical Press.*

BY THE SAME AUTHOR.

**INTRODUCTION TO PRACTICAL CHEMISTRY, INCLUDING ANALYSIS.** Third American, from the third and revised London edition. With numerous illustrations. In one neat vol., royal 12mo., extra cloth. \$1 75. (*Just Ready.*)

This favorite little manual has received a very thorough and careful revision at the hands of a competent editor, and will be found fully brought up to the present condition of chemical science. Many portions have been rewritten, the subjects of the blow-pipe and volumetric analysis have received special attention, and an additional chapter has been appended. Students of practical chemistry will therefore find it, as heretofore, a most convenient and condensed text-book and guide in the operations of the laboratory.

**BEALE ON THE LAWS OF HEALTH IN RELATION TO MIND AND BODY.** A Series of Letters from an old Practitioner to a Patient. In one volume, royal 12mo., extra cloth. pp. 206. 80 cents.

**BUSHNAN'S PHYSIOLOGY OF ANIMAL AND VEGETABLE LIFE;** a Popular Treatise on the Functions and Phenomena of Organic Life. In one handsome royal 12mo. volume, extra cloth, with over 100 illustrations. pp. 334. 80 cents.

**BUCKLER ON THE ETIOLOGY, PATHOLOGY, AND TREATMENT OF FIBRO-BRONCHITIS AND RHEUMATIC PNEUMONIA.** In one 8vo. volume, extra cloth. pp. 150. \$1 25.

**BLOOD AND URINE (MANUALS ON).** BY JOHN WILLIAM GRIFFITH, G. OWEN REESE, AND ALFRED MARKWICK. One thick volume, royal 12mo., extra cloth, with plates. pp. 400. \$1 25.

**BRODIE'S CLINICAL LECTURES ON SUB-**



**BUMSTEAD (FREEMAN J.) M. D.,**

Lecturer on Venereal Diseases at the College of Physicians and Surgeons, New York, &amp;c.

**THE PATHOLOGY AND TREATMENT OF VENEREAL DISEASES,**  
including the results of recent investigations upon the subject. Second edition, thoroughly revised and much improved. With illustrations on wood. In one very handsome octavo volume, of about 700 pages. (*Nearly Ready.*)

By far the most valuable contribution to this particular branch of practice that has seen the light within the last score of years. His clear and accurate descriptions of the various forms of venereal disease, and especially the methods of treatment he proposes, are worthy of the highest encomium. In these respects it is better adapted for the assistance of the every-day practitioner than any other with which we are acquainted. In variety of methods proposed, in minuteness of direction, guided by careful discrimination of varying forms and complications, we write down the book as unsurpassed. It is a work which should be in the possession of every practitioner.—*Chicago Med. Journal*, Nov. 1861.

The foregoing admirable volume comes to us, embracing the whole subject of syphilology, resolving many a doubt, correcting and confirming many an entertained opinion, and in our estimation the best, complete, fullest monograph on this subject in our language. As far as the author's labors themselves are concerned, we feel it a duty to say that he has not only exhausted his subject, but he has presented to us, without the slightest hyperbole, the best digested treatise on these diseases in our language. He has carried its literature down to the present moment, and has achieved his task in a manner which cannot but redound to his credit.—*British American Journal*, Oct. 1861.

We believe this treatise will come to be regarded as high authority in this branch of medical practice, and we cordially commend it to the favorable notice of our brethren in the profession. For our own part, we candidly confess that we have received many new ideas from its perusal, as well as modified many views which we have long, and, as we now think, erroneously entertained on the subject of syphilis.

To sum up all in a few words, this book is one which no practising physician or medical student can very well afford to do without.—*American Med. Times*, Nov. 2, 1861.

The whole work presents a complete history of venereal diseases, comprising much interesting and valuable material that has been spread through medical journals within the last twenty years—the period of many experiments and investigations on the subject—the whole carefully digested by the aid of the author's extensive personal experience, and offered to the profession in an admirable form. Its completeness is secured by good plates, which are especially full in the anatomy of the genital organs. We have examined it with great satisfaction, and congratulate the medical profession in America on the nationality of a work that may fairly be called original.—*Berkshire Med. Journal*, Dec. 1861.

One thing, however, we are impelled to say, that we have met with no other book on syphilis, in the English language, which gave so full, clear, and impartial views of the important subjects on which it treats. We cannot, however, refrain from expressing our satisfaction with the full and perspicuous manner in which the subject has been presented, and the careful attention to minute details, so useful—not to say indispensable—in a practical treatise. In conclusion, if we may be pardoned the use of a phrase now become stereotyped, but which we here employ in all seriousness and sincerity, we do not hesitate to express the opinion that Dr. Bumstead's Treatise on Venereal Diseases is a "work without which no medical library will hereafter be considered complete."—*Boston Med. and Surg. Journal*, Sept. 5, 1861.

**BARCLAY (A. W.), M. D.,**

Assistant Physician to St. George's Hospital, &amp;c.

**A MANUAL OF MEDICAL DIAGNOSIS; being an Analysis of the Signs and Symptoms of Disease.** Third American from the second and revised London edition. In one neat octavo volume, extra cloth, of 451 pages. \$3 25. (*Just Ready.*)

The demand for a second edition of this work shows that the vacancy which it attempts to supply has been recognized by the profession, and that the efforts of the author to meet the want have been successful. The revision which it has enjoyed will render it better adapted than before to afford assistance to the learner in the prosecution of his studies, and to the practitioner who requires a convenient and accessible manual for speedy reference in the exigencies of his daily duties. For this latter purpose its complete and extensive Index renders it especially valuable, offering facilities for immediately turning to any class of symptoms, or any variety of disease.

The task of composing such a work is neither an easy nor a light one; but Dr. Barclay has performed it in a manner which meets our most unqualified approbation. He is no mere theorist; he knows his work thoroughly, and in attempting to perform it, has not exceeded his powers.—*British Med. Journal*.

We venture to predict that the work will be deservedly popular, and soon become, like Watson's Practice, an indispensable necessity to the practitioner.—*N. A. Med. Journal*.

An inestimable work of reference for the young practitioner and student.—*Nashville Med. Journal*.

We hope the volume will have an extensive circulation, not among students of medicine only, but practitioners also. They will never regret a faithful study of its pages.—*Cincinnati Lancet*.

An important acquisition to medical literature. It is a work of high merit, both from the vast importance of the subject upon which it treats, and also from the real ability displayed in its elaboration. In conclusion, let us bespeak for this volume that attention of every student of our art which it so richly deserves—that place in every medical library which it can so well adorn.—*Pennsylvania Medical Journal*.

**BARTLETT (ELISHA), M. D.****THE HISTORY, DIAGNOSIS, AND TREATMENT OF THE FEVERS OF THE UNITED STATES.** A new and revised edition. By ALONZO CLARK, M. D., Prof. of Pathology and Practical Medicine in the N. Y. College of Physicians and Surgeons, &c. In one octavo volume, of six hundred pages, extra cloth. Price \$3 00.

It is a work of great practical value and interest, containing much that is new relative to the several diseases of which it treats, and, with the additions of the editor, is fully up to the times. The distinctive features of the different forms of fever are plainly and forcibly portrayed, and the lines of demarcation carefully and accurately drawn, and to the American practitioner is a more valuable and safe guide than any work on fever extant.—*Ohio Med. and Surg. Journal*.

stood deservedly high since its first publication. It will be seen that it has now reached its fourth edition under the supervision of Prof. A. Clark, a gentleman who, from the nature of his studies and pursuits, is well calculated to appreciate and discuss the many intricate and difficult questions in pathology. His annotations add much to the interest of the work, and have brought it well up to the condition of the science as it exists at the present day in regard to this class of diseases.—*Southern Med.*

**BRANDE (WM. T.) D. C. L., AND ALFRED S. TAYLOR, M. D., F. R. S.**  
 Of her Majesty's Mint, &c. Professor of Chemistry and Medical Jurisprudence in  
 Guy's Hospital.

**CHEMISTRY.** In one handsome 8vo. volume of 696 pages, extra cloth. \$3 50.  
 (Now Ready, May, 1863)

"Having been engaged in teaching Chemistry in this Metropolis, the one for a period of forty, and the other for a period of thirty years, it has appeared to us that, in spite of the number of books already existing, there was room for an additional volume, which should be especially adapted for the use of students. In preparing such a volume for the press, we have endeavored to bear in mind, that the student in the present day has much to learn, and but a short time at his disposal for the acquisition of this learning."—AUTHORS' PREFACE.

In reprinting this volume, its passage through the press has been superintended by a competent chemist, who has sedulously endeavored to secure the accuracy so necessary in a work of this nature. No notes or additions have been introduced, but the publishers have been favored by the authors with some corrections and revisions of the first twenty-one chapters, which have been duly inserted.

In so progressive a science as Chemistry, the latest work always has the advantage of presenting the subject as modified by the results of the latest investigations and discoveries. That this advantage has been made the most of, and that the work possesses superior attractions arising from its clearness, simplicity of style, and lucid arrangement, are manifested by the unanimous testimony of the English medical press.

It needs no great sagacity to foretell that this book will be, literally, the Handbook in Chemistry of the student and practitioner. For clearness of language, accuracy of description, extent of information, and freedom from pedantry and mysticism of modern chemistry, no other text-book comes into competition with it. The result is a work which for fulness of matter, for lucidity of arrangement, for clearness of style, is as yet without a rival. And long will it be without a rival. For, although with the necessary advance of chemical knowledge additions will be required, there will be little to take away. The fundamental excellences of the book will remain, preserving it for years to come, what it now is, the best guide to the study of Chemistry yet given to the world.—*London Lancet*, Dec. 20, 1862.

Most assuredly, time has not abated one whit of the fluency, the vigor, and the clearness with which they not only have composed the work before us, but have, so to say, cleared the ground for it, by hitting right

and left at the affectation, mysticism, and obscurity which pervade some late chemical treatises. Thus conceived, and worked out in the most sturdy, common sense method, this book gives, in the clearest and most summary method possible, all the facts and doctrines of chemistry, with more especial reference to the wants of the medical student.—*London Medical Times and Gazette*, Nov. 29, 1862.

If we are not very much mistaken, this book will occupy a place which none has hitherto held among chemists; for, by avoiding the errors of previous authors, we have a work which, for its size, is certainly the most perfect of any in the English language. There are several points to be noted in this volume which separate it widely from any of its competitors—its wide application, not to the medical student only, nor to the student in chemistry merely, but to every branch of science, art, or commerce which is in any way connected with the domain of chemistry.—*London Med. Review*, Feb. 1863.

**BARWELL (RICHARD,) F. R. C. S.,**

Assistant Surgeon Charing Cross Hospital, &c.

**A TREATISE ON DISEASES OF THE JOINTS.** Illustrated with engravings on wood. In one very handsome octavo volume, of about 500 pages, extra cloth; \$3 00.

At the outset we may state that the work is worthy of much praise, and bears evidence of much thoughtful and careful inquiry, and here and there of no slight originality. We have already carried this notice further than we intended to do, but not to the extent the work deserves. We can only add, that the perusal of it has afforded us great pleasure. The author has evidently worked very hard at his subject, and his investigations into the Physiology and Pathology of Joints have been carried on in a manner which entitles him to be listened to with attention and respect. We must not omit to mention the very admirable plates with which the volume is enriched. We seldom meet with such striking

and faithful delineations of disease.—*London Med. Times and Gazette*, Feb. 9, 1861.

This volume will be welcomed, as the record of much honest research and careful investigation into the nature and treatment of a most important class of disorders. We cannot commend this notice of a valuable and useful book without calling attention to the amount of *bona fide* work it contains. It is no slight matter for a volume to show laborious investigation, and at the same time original thought, on the part of its author, whom we may congratulate on the successful completion of his arduous task.—*London Lancet*, March 9, 1861.

**CARPENTER (WILLIAM B.), M. D., F. R. S., &c.,**

Examiner in Physiology and Comparative Anatomy in the University of London.

**THE MICROSCOPE AND ITS REVELATIONS.** With an Appendix containing the Applications of the Microscope to Clinical Medicine, &c. By F. G. SMITH, M. D. Illustrated by four hundred and thirty-four beautiful engravings on wood. In one large and very handsome octavo volume, of 724 pages, extra cloth, \$4 50.

The great importance of the microscope as a means of diagnosis, and the number of microscopists who are also physicians, have induced the American publishers, with the author's approval, to add an Appendix, carefully prepared by Professor Smith, on the applications of the instrument to clinical medicine, together with an account of American Microscopes, their modifications and accessories. This portion of the work is illustrated with nearly one hundred wood-cuts, and, it is hoped, will adapt the volume more particularly to the use of the American student.

Those who are acquainted with Dr. Carpenter's previous writings on Animal and Vegetable Physiology, will fully understand how vast a store of knowledge he is able to bring to bear upon so comprehensive a subject as the revelations of the microscope; and even those who have no previous acquaintance with the construction or uses of this instrument, will find abundance of information conveyed in clear and simple language.—*Med. Times and Gazette*

The additions by Prof. Smith give it a positive claim upon the profession, for which we doubt not he will receive their sincere thanks. Indeed, we know not where the student of medicine will find such a complete and satisfactory collection of microscopic facts bearing upon physiology and practical medicine as is contained in Prof. Smith's appendix; and this of itself, it seems to us, is fully worth the cost of the volume.—*London Medical Review*

**PRINCIPLES OF HUMAN PHYSIOLOGY;** with their chief applications to Psychology, Pathology, Therapeutics, Hygiene, and Forensic Medicine. A new American, from the last and revised London edition. With nearly three hundred illustrations. Edited, with additions, by FRANCIS GURNEY SMITH, M. D., Professor of the Institutes of Medicine in the Pennsylvania Medical College, &c. In one very large and beautiful octavo volume, of about nine hundred large pages, handsomely printed, extra cloth, \$4 50; strongly bound in leather, with raised bands, \$5 00.

For upwards of thirteen years Dr. Carpenter's work has been considered by the profession generally, both in this country and England, as the most valuable compendium on the subject of physiology in our language. This distinction it owes to the high attainments and unwearied industry of its accomplished author. The present edition (which, like the last American one, was prepared by the author himself), is the result of such extensive revision, that it may almost be considered a new work. We need hardly say, in concluding this brief notice, that while the work is indispensable to every student of medicine in this country, it will amply repay the practitioner for its perusal by the interest and value of its contents.—*Boston Med. and Surg. Journal*.

This is a standard work—the text-book used by all medical students who read the English language. It has passed through several editions in order to keep pace with the rapidly growing science of Physiology. Nothing need be said in its praise, for its merits are universally known; we have nothing to say of its defects, for they only appear where the science of which it treats is incomplete.—*Western Lancet*.

The most complete exposition of physiology which any language can at present give.—*Bris. and For. Med.-Chirurg. Review*.

The greatest, the most reliable, and the best book on the subject which we know of in the English language.—*Stethoscope*.

To enlarge this great work would be superfluous. We should observe, however, that in this edition the author has remodelled a large portion of the former, and the editor has added much matter of interest, especially in the form of illustrations. We may confidently recommend it as the most complete work on Human Physiology in our language.—*Southern Med. and Surg. Journal*.

The most complete work on the science in our language.—*Am. Med. Journal*.

The most complete work now extant in our language.—*N. O. Med. Register*.

The best text-book in the language on this extensive subject.—*London Med. Times*.

A complete cyclopædia of this branch of science.—*N. Y. Med. Times*.

The profession of this country, and perhaps also of Europe, have anxiously and for sometime awaited the announcement of this new edition of Carpenter's Human Physiology. His former editions have for many years been almost the only text-book on Physiology in all our medical schools, and its circulation among the profession has been unsurpassed by any work in any department of medical science.

It is quite unnecessary for us to speak of this work as its merits would justify. The mere announcement of its appearance will afford the highest pleasure to every student of Physiology, while its perusal will be of infinite service in advancing physiological science.—*Ohio Med. and Surg. Journ.*

BY THE SAME AUTHOR.

**ELEMENTS (OR MANUAL) OF PHYSIOLOGY, INCLUDING PHYSIOLOGICAL ANATOMY.** Second American, from a new and revised London edition. With one hundred and ninety illustrations. In one very handsome octavo volume, leather. pp. 566. \$3 00.

In publishing the first edition of this work, its title was altered from that of the London volume; by the substitution of the word "Elements" for that of "Manual," and with the author's sanction the title of "Elements" is still retained as being more expressive of the scope of the treatise.

BY THE SAME AUTHOR.

**PRINCIPLES OF COMPARATIVE PHYSIOLOGY.** New American, from the Fourth and Revised London edition. In one large and handsome octavo volume, with over three hundred beautiful illustrations. pp. 752. Extra cloth, \$5 25.

This book should not only be read but thoroughly studied by every member of the profession. None are too wise or old, to be benefited thereby. But especially to the younger class would we cordially commend it as best fitted of any work in the English language to qualify them for the reception and comprehension of those truths which are daily being developed in physiology.—*Medical Councillor*.

Without pretending to it, it is an encyclopædia of the subject, accurate and complete in all respects—a truthful reflection of the advanced state at which the science has now arrived.—*Dublin Quarterly Journal of Medical Science*.

A truly magnificent work—in itself a perfect physiological study.—*Ranking's Abstract*.

This work stands without its fellow. It is one few men in Europe could have undertaken; it is one

no man, we believe, could have brought to so successful an issue as Dr. Carpenter. It required for its production a physiologist at once deeply read in the labors of others, capable of taking a general, critical, and unprejudiced view of those labors, and of combining the varied, heterogeneous materials at his disposal, so as to form an harmonious whole. We feel that this abstract can give the reader a very imperfect idea of the fulness of this work, and no idea of its unity, of the admirable manner in which material has been brought, from the most various sources, to conduce to its completeness, of the lucidity of the reasoning it contains, or of the clearness of language in which the whole is clothed. Not the profession only, but the scientific world at large, must feel deeply indebted to Dr. Carpenter for this great work. It must, indeed, add largely even to his high reputation.—*Medical Times*.

BY THE SAME AUTHOR. (Preparing.)

**PRINCIPLES OF GENERAL PHYSIOLOGY, INCLUDING ORGANIC CHEMISTRY AND HISTOLOGY.** With a General Sketch of the Vegetable and Animal Kingdom. In one large and very handsome octavo volume, with several hundred illustrations.

BY THE SAME AUTHOR.

**A PRIZE ESSAY ON THE USE OF ALCOHOLIC LIQUORS IN HEALTH**

CONDIE (D. F.), M. D., &c.

**A PRACTICAL TREATISE ON THE DISEASES OF CHILDREN.** Fifth edition, revised and augmented. In one large volume, 8vo., extra cloth, of over 750 pages. \$3 25.

In presenting a new and revised edition of this favorite work, the publishers have only to state that the author has endeavored to render it in every respect "a complete and faithful exposition of the pathology and therapeutics of the maladies incident to the earlier stages of existence—a full and exact account of the diseases of infancy and childhood." To accomplish this he has subjected the whole work to a careful and thorough revision, rewriting a considerable portion, and adding several new chapters. In this manner it is hoped that any deficiencies which may have previously existed have been supplied, that the recent labors of practitioners and observers have been thoroughly incorporated, and that in every point the work will be found to maintain the high reputation it has enjoyed as a complete and thoroughly practical book of reference in infantile affections.

A few notices of previous editions are subjoined.

Dr. Condie's scholarship, acumen, industry, and practical sense are manifested in this, as in all his numerous contributions to science.—*Dr. Holmes's Report to the American Medical Association.*

Taken as a whole, in our judgment, Dr. Condie's Treatise is the one from the perusal of which the practitioner in this country will rise with the greatest satisfaction.—*Western Journal of Medicine and Surgery.*

One of the best works upon the Diseases of Children in the English language.—*Western Lancet.*

We feel assured from actual experience that no physician's library can be complete without a copy of this work.—*N. Y. Journal of Medicine.*

A veritable pediatric encyclopedia, and an honor to American medical literature.—*Ohio Medical and Surgical Journal.*

We feel persuaded that the American medical profession will soon regard it not only as a very good, but as the VERY BEST "Practical Treatise on the Diseases of Children."—*American Medical Journal.*

In the department of infantile therapeutics, the work of Dr. Condie is considered one of the best which has been published in the English language.—*The Stethoscope.*

We pronounced the first edition to be the best work on the diseases of children in the English language, and, notwithstanding all that has been published, we still regard it in that light.—*Medical Examiner.*

The value of works by native authors on the diseases which the physician is called upon to combat, will be appreciated by all; and the work of Dr. Condie has gained for itself the character of a safe guide for students, and a useful work for consultation by those engaged in practice.—*N. Y. Med. Times.*

This is the fourth edition of this deservedly popular treatise. During the interval since the last edition, it has been subjected to a thorough revision by the author; and all new observations in the pathology and therapeutics of children have been included in the present volume. As we said before, we do not know of a better book on diseases of children, and to a large part of its recommendations we yield an unhesitating concurrence.—*Buffalo Med. Journal.*

Perhaps the most full and complete work now before the profession of the United States; indeed, we may say in the English language. It is vastly superior to most of its predecessors.—*Transylvania Med. Journal.*

CHRISTISON (ROBERT), M. D., V. P. R. S. E., &c.

**A DISPENSATORY; or, Commentary on the Pharmacopœias of Great Britain and the United States; comprising the Natural History, Description, Chemistry, Pharmacy, Actions, Uses, and Doses of the Articles of the Materia Medica.** Second edition, revised and improved, with a Supplement containing the most important New Remedies. With copious Additions, and two hundred and thirteen large wood-engravings. By R. EGLESFIELD GRIFFITH, M. D. In one very large and handsome octavo volume, extra cloth, of over 1000 pages. \$3 50.

COOPER (BRANSBY B.), F. R. S.

**LECTURES ON THE PRINCIPLES AND PRACTICE OF SURGERY.** In one very large octavo volume, extra cloth, of 750 pages. \$3 00.

**COOPER ON DISLOCATIONS AND FRACTURES OF THE JOINTS.**—Edited by BRANSBY B. COOPER, F. R. S., &c. With additional Observations by Prof. J. C. WARREN. A new American edition. In one handsome octavo volume, extra cloth, of about 500 pages, with numerous illustrations on wood. \$3 25.

**COOPER ON THE ANATOMY AND DISEASES OF THE BREAST,** with twenty-five Miscellaneous and Surgical Papers. One large volume, imperial 8vo., extra cloth, with 252 figures, on 36 plates. \$2 50.

**COOPER ON THE STRUCTURE AND DISEASES OF THE TESTIS, AND ON THE THYMUS GLAND.** One vol. imperial 8vo., extra cloth, with 177 figures on 29 plates. \$2 00.

**COPLAND ON THE CAUSES, NATURE, AND TREATMENT OF PALSY AND APOPLEXY.** In one volume, royal 12mo., extra cloth. pp. 328. 80 cents.

**CLYMER ON FEVERS; THEIR DIAGNOSIS, PATHOLOGY, AND TREATMENT.** In one octavo volume, leather, of 600 pages. \$1 50.

**COLOMBAT DE L'ISERE ON THE DISEASES OF FEMALES,** and on the special Hygiene of their Sex. Translated, with many Notes and Additions, by C. D. MAZES, M. D. Second edition, revised and improved. In one large volume, octavo, leather, with numerous wood-cuts. pp. 720. \$3 50.

CARSON (JOSEPH), M. D.,

Professor of Materia Medica and Pharmacy in the University of Pennsylvania.

**SYNOPSIS OF THE COURSE OF LECTURES ON MATERIA MEDICA AND PHARMACY,** delivered in the University of Pennsylvania. With three Lectures on the Modus Operandi of Medicines. Third edition, revised. In one handsome octavo volume. (Now Ready.) \$2 25.

CURLING (T. B.), F. R. S.,

Surgeon to the London Hospital, President of the Hunterian Society, &c.

**A PRACTICAL TREATISE ON DISEASES OF THE TESTIS, SPERMATIC CORD, AND SCROTUM.** Second American, from the second and enlarged English edi.

CHURCHILL (FLEETWOOD), M. D., M. R. I. A.

**ON THE THEORY AND PRACTICE OF MIDWIFERY.** A new American from the fourth revised and enlarged London edition. With Notes and Additions, by D. FRANCIS CONNIE, M. D., author of a "Practical Treatise on the Diseases of Children," &c. With 194 illustrations. In one very handsome octavo volume, of nearly 700 large pages, extra cloth, \$3 50.

This work has been so long an established favorite, both as a text-book for the learner and as a reliable aid in consultation for the practitioner, that in presenting a new edition it is only necessary to call attention to the very extended improvements which it has received. Having had the benefit of two revisions by the author since the last American reprint, it has been materially enlarged, and Dr. Churchill's well-known conscientious industry is a guarantee that every portion has been thoroughly brought up with the latest results of European investigation in all departments of the science and art of obstetrics. The recent date of the last Dublin edition has not left much of novelty for the American editor to introduce, but he has endeavored to insert whatever has since appeared, together with such matters as his experience has shown him would be desirable for the American student, including a large number of illustrations. With the sanction of the author he has added in the form of an appendix, some chapters from a little "Manual for Midwives and Nurses," recently issued by Dr. Churchill, believing that the details there presented can hardly fail to prove of advantage to the junior practitioner. The result of all these additions is that the work now contains fully one-half more matter than the last American edition, with nearly one-half more illustrations, so that notwithstanding the use of a smaller type, the volume contains almost two hundred pages more than before.

No effort has been spared to secure an improvement in the mechanical execution of the work equal to that which the text has received, and the volume is confidently presented as one of the handsomest that has thus far been laid before the American profession; while the very low price at which it is offered should secure for it a place in every lecture-room and on every office table.

A better book in which to learn these important points we have not met than Dr. Churchill's. Every page of it is full of instruction; the opinion of all writers of authority is given on questions of difficulty, as well as the directions and advice of the learned author himself, to which he adds the result of statistical inquiry, putting statistics in their proper place and giving them their due weight, and no more. We have never read a book more free from professional jealousy than Dr. Churchill's. It appears to be written with the true design of a book on medicine, viz: to give all that is known on the subject of which he treats, both theoretically and practically, and to advance such opinions of his own as he believes will benefit medical science, and insure the safety of the patient. We have said enough to convey to the profession that this book of Dr. Churchill's is admirably suited for a book of reference for the practitioner, as well as a text-book for the student, and we hope it may be extensively purchased amongst our readers. To them we most strongly recommend it.—*Dublin Medical Press.*

To bestow praise on a book that has received such marked approbation would be superfluous. We need only say, therefore, that if the first edition was thought worthy of a favorable reception by the medical public, we can confidently affirm that this will be found much more so. The lecturer, the practitioner, and the student, may all have recourse to its pages, and derive from their perusal much interest and instruction in everything relating to theoretical and practical midwifery.—*Dublin Quarterly Journal of Medical Science.*

A work of very great merit, and such as we can confidently recommend to the study of every obstetric practitioner.—*London Medical Gazette.*

Few treatises will be found better adapted as a text-book for the student, or as a manual for the frequent consultation of the young practitioner.—*American Medical Journal.*

Were we reduced to the necessity of having but one work on midwifery, and permitted to choose, we would unhesitatingly take Churchill.—*Western Med. and Surg. Journal.*

It is impossible to conceive a more useful and elegant manual than Dr. Churchill's Practice of Midwifery.—*Provincial Medical Journal.*

Certainly, in our opinion, the very best work on the subject which exists.—*N. Y. Assailist.*

No work holds a higher position, or is more deserving of being placed in the hands of the tyro, the advanced student, or the practitioner.—*Medical Examiner.*

Previous editions have been received with marked favor, and they deserved it; but this, reprinted from a very late Dublin edition, carefully revised and brought up by the author to the present time, does present an unusually accurate and able exposition of every important particular embraced in the department of midwifery. \* \* The clearness, directness, and precision of its teachings, together with the great amount of statistical research which its text exhibits, have served to place it already in the foremost rank of works in this department of remedial science.—*N. O. Med. and Surg. Journal.*

In our opinion, it forms one of the best if not the very best text-book and epitome of obstetric science which we at present possess in the English language.—*Monthly Journal of Medical Science.*

The clearness and precision of style in which it is written, and the great amount of statistical research which it contains, have served to place it in the first rank of works in this department of medical science.—*N. Y. Journal of Medicine.*

This is certainly the most perfect system extant. It is the best adapted for the purposes of a text-book, and that which he whose necessities confine him to one book, should select in preference to all others.—*Southern Medical and Surgical Journal.*

BY THE SAME AUTHOR. (Lately Published.)

**ON THE DISEASES OF INFANTS AND CHILDREN.** Second American Edition, revised and enlarged by the author. Edited, with Notes, by W. V. KEATING, M. D. In one large and handsome volume, extra cloth, of over 700 pages. \$3 25.

In preparing this work a second time for the American profession, the author has spared no labor in giving it a very thorough revision, introducing several new chapters, and rewriting others, while every portion of the volume has been subjected to a severe scrutiny. The efforts of the American editor have been directed to supplying such information relative to matters peculiar to this country as might have escaped the attention of the author, and the whole may, therefore, be safely pronounced one of the most complete works on the subject accessible to the American Profession. By an alteration in the size of the page, these very extensive additions have been accommodated without unduly increasing the size of the work.

BY THE SAME AUTHOR.

**ESSAYS ON THE PUERPERAL FEVER, AND OTHER DISEASES PECULIAR TO WOMEN.** Selected from the writings of British Authors previous to the close of

### CHURCHILL (FLEETWOOD), M. D., M. R. I. A., &c.

**ON THE DISEASES OF WOMEN;** including those of Pregnancy and Child-bed. A new American edition, revised by the Author. With Notes and Additions, by D. FRANCIS CONDIE, M. D., author of "A Practical Treatise on the Diseases of Children." With numerous illustrations. In one large and handsome octavo volume, extra cloth, of 768 pages. \$3 00.

This edition of Dr. Churchill's very popular treatise may almost be termed a new work, so thoroughly has he revised it in every portion. It will be found greatly enlarged, and completely brought up to the most recent condition of the subject, while the very handsome series of illustrations introduced, representing such pathological conditions as can be accurately portrayed, present a novel feature, and afford valuable assistance to the young practitioner. Such additions as appeared desirable for the American student have been made by the editor, Dr. Condie, while a marked improvement in the mechanical execution keeps pace with the advance in all other respects which the volume has undergone, while the price has been kept at the former very moderate rate.

It comprises, unquestionably, one of the most exact and comprehensive expositions of the present state of medical knowledge in respect to the diseases of women that has yet been published.—*Am. Journ. Med. Sciences.*

This work is the most reliable which we possess on this subject; and is deservedly popular with the profession.—*Charleston Med. Journal*, July, 1867.

We know of no author who deserves that approbation, on "the diseases of females," to the same

extent that Dr. Churchill does. His, indeed, is the only thorough treatise we know of on the subject; and it may be commended to practitioners and students as a masterpiece in its particular department.—*The Western Journal of Medicine and Surgery.*

As a comprehensive manual for students, or a work of reference for practitioners, it surpasses any other that has ever issued on the same subject from the British press.—*Dublin Quart. Journal.*

### DICKSON (S. H.), M. D.

Professor of Practice of Medicine in the Jefferson Medical College, Philadelphia.

**ELEMENTS OF MEDICINE;** a Compendious View of Pathology and Therapeutics, or the History and Treatment of Diseases. Second edition, revised. In one large and handsome octavo volume, of 750 pages, extra cloth. \$3 75.

The steady demand which has so soon exhausted the first edition of this work, sufficiently shows that the author was not mistaken in supposing that a volume of this character was needed—an elementary manual of practice, which should present the leading principles of medicine with the practical results, in a condensed and perspicuous manner. Disencumbered of unnecessary detail and fruitless speculations, it embodies what is most requisite for the student to learn, and at the same time what the active practitioner wants when obliged, in the daily calls of his profession, to refresh his memory on special points. The clear and attractive style of the author renders the whole easy of comprehension, while his long experience gives to his teachings an authority everywhere acknowledged. Few physicians, indeed, have had wider opportunities for observation and experience, and few, perhaps, have used them to better purpose. As the result of a long life devoted to study and practice, the present edition, revised and brought up to the date of publication, will doubtless maintain the reputation already acquired as a condensed and convenient American text-book on the Practice of Medicine.

### DRUITT (ROBERT), M. R. C. S., &c.

**THE PRINCIPLES AND PRACTICE OF MODERN SURGERY.** A new and revised American from the eighth enlarged and improved London edition. Illustrated with four hundred and thirty-two wood-engravings. In one very handsomely printed octavo volume of nearly 700 large pages, extra cloth, \$3 50.

A work which like DRUITT'S SURGERY has for so many years maintained the position of a leading favorite with all classes of the profession, needs no special recommendation to attract attention to a revised edition. It is only necessary to state that the author has spared no pains to keep the work up to its well earned reputation of presenting in a small and convenient compass the latest condition of every department of surgery, considered both as a science and as an art; and that the services of a competent American editor have been employed to introduce whatever novelties may have escaped the author's attention, or may prove of service to the American practitioner. As several editions have appeared in London since the issue of the last American reprint, the volume has had the benefit of repeated revisions by the author, resulting in a very thorough alteration and improvement. The extent of these additions may be estimated from the fact that it now contains about one-third more matter than the previous American edition, and that notwithstanding the adoption of a smaller type, the pages have been increased by about one hundred, while nearly two hundred and fifty wood-cuts have been added to the former list of illustrations.

A marked improvement will also be perceived in the mechanical and artistical execution of the work, which, printed in the best style, on new type, and fine paper, leaves little to be desired as regards external finish; while at the very low price affixed it will be found one of the cheapest volumes accessible to the profession.

This popular volume, now a most comprehensive work on surgery, has undergone many corrections, improvements, and additions, and the principles and the practice of the art have been brought down to the latest record and observation. Of the operations in surgery it is impossible to speak too highly. The descriptions are so clear and concise, and the illustrations so accurate and numerous, that the student can have no difficulty, with instrument in hand, and book by his side, over the dead body, in obtaining a proper knowledge and sufficient tact in this much neglected department of medical education.—*British Foreign Medical-Chirurg. Review*, Jan. 1860.

In the present edition the author has entirely retted many of the chapters, and has incorporated various improvements and additions in modern

nothing of real practical importance has been omitted; it presents a faithful epitome of everything relating to surgery up to the present hour. It is deservedly a popular manual, both with the student and practitioner.—*London Lancet*, Nov. 19, 1860.

In closing this brief notice, we recommend as cordially as ever this most useful and comprehensive hand-book. It must prove a vast assistance, not only to the student of surgery, but also to the busy practitioner who may not have the leisure to devote himself to the study of more lengthy volumes.—*London Med. Times and Gazette*, Oct. 23, 1859.

In a word, this eighth edition of Dr. Drutt's Manual of Surgery is all that the surgical student or practitioner could desire.—*Dublin Quarterly*

## DALTON, JR. (J. C.), M. D.

Professor of Physiology in the College of Physicians, New York.

**A TREATISE ON HUMAN PHYSIOLOGY**, designed for the use of Students and Practitioners of Medicine. Third edition, revised, with nearly three hundred illustrations on wood. In one very beautiful octavo volume, of 700 pages, extra cloth, \$4 50. (Just Ready 1864.)

The rapid demand for another edition of this work sufficiently shows that the author has succeeded in his efforts to produce a text-book of standard and permanent value, embodying within a moderate compass all that is definitely and positively known within the domain of Human Physiology. His high reputation as an original observer and investigator, is a guarantee that in again revising it he has introduced whatever is necessary to render it thoroughly on a level with the advanced science of the day, and this has been accomplished without unduly increasing the size of the volume.

No exertion has been spared to maintain the high standard of typographical execution which has rendered this work admittedly one of the handsomest volumes as yet produced in this country.

It will be seen, therefore, that Dr. Dalton's best efforts have been directed towards perfecting his work. The additions are marked by the same features which characterize the remainder of the volume, and render it by far the most desirable text-book on physiology to place in the hands of the student which, so far as we are aware, exists in the English language, or perhaps in any other. We therefore have no hesitation in recommending Dr. Dalton's book for the classes for which it is intended, satisfied as we are that it is better adapted to their use than any other work of the kind to which they have access.—*American Journal of the Medical Sciences*, April, 1861.

It is, therefore, no disparagement to the many books upon physiology, most excellent in their day, to say that Dalton's is the only one that gives us the science as it was known to the best philosophers throughout the world, at the beginning of the current year. It states in comprehensive but concise diction, the facts established by experiment, or other method of demonstration, and details, in an understandable manner, how it is done, but abstains from the discussion of unsettled or theoretical points. Herein it is unique; and these characteristics render it a text-book without a rival, for those who desire to study physiological science as it is known to its most successful cultivators. And it is physiology thus presented that lies at the foundation of correct pathological knowledge; and this in turn is the basis of rational therapeutics; so that pathology, in fact, becomes of prime importance in the proper discharge of our every-day practical duties.—*Cincinnati Lancet*, May, 1861.

Dr. Dalton needs no word of praise from us. He is universally recognized as among the first, if not the very first, of American physiologists now living. The first edition of his admirable work appeared but two years since, and the advance of science, his

own original views and experiments, together with a desire to supply what he considered some deficiencies in the first edition, have already made the present one a necessity, and it will no doubt be ever more eagerly sought for than the first. That it is not merely a reprint, will be seen from the author's statement of the following principal additions and alterations which he has made. The present, like the first edition, is printed in the highest style of the printer's art, and the illustrations are truly admirable for their clearness in expressing exactly what their author intended.—*Boston Medical and Surgical Journal*, March 28, 1861.

It is unnecessary to give a detail of the additions; suffice it to say, that they are numerous and important, and such as will render the work still more valuable and acceptable to the profession as a learned and original treatise on this all-important branch of medicine. All that was said in commendation of the getting up of the first edition, and the superior style of the illustrations, apply with equal force to this. No better work on physiology can be placed in the hand of the student.—*St. Louis Medical and Surgical Journal*, May, 1861.

These additions, while testifying to the learning and industry of the author, render the book exceedingly useful, as the most complete exposé of a science, of which Dr. Dalton is doubtless the ablest representative on this side of the Atlantic.—*New Orleans Med. Times*, May, 1861.

A second edition of this deservedly popular work having been called for in the short space of two years, the author has supplied deficiencies, which existed in the former volume, and has thus more completely fulfilled his design of presenting to the profession a reliable and precise text-book, and one which we consider the best outline on the subject of which it treats, in any language.—*N. American Medical-Chirurg. Review*, May, 1861.

## DUNGLISON, FORBES, TWEEDIE, AND CONOLLY.

**THE CYCLOPÆDIA OF PRACTICAL MEDICINE**: comprising Treatises on the Nature and Treatment of Diseases, Materia Medica, and Therapeutics, Diseases of Women and Children, Medical Jurisprudence, &c. &c. In four large super-royal octavo volumes, of 3254 double-columned pages, strongly and handsomely bound, with raised bands. \$12 00.

\* \* This work contains no less than four hundred and eighteen distinct treatises, contributed by sixty-eight distinguished physicians, rendering it a complete library of reference for the country practitioner.

The most complete work on Practical Medicine extant; or, at least, in our language.—*Buffalo Medical and Surgical Journal*.

For reference, it is above all price to every practitioner.—*Western Lancet*.

One of the most valuable medical publications of the day—as a work of reference it is invaluable.—*Western Journal of Medicine and Surgery*.

It has been to us, both as learner and teacher, a work for ready and frequent reference, one in which modern English medicine is exhibited in the most advantageous light.—*Medical Examiner*.

The editors are practitioners of established reputation, and the list of contributors embraces many of the most eminent professors and teachers of London, Edinburgh, Dublin, and Glasgow. It is, indeed, the great merit of this work that the principal articles have been furnished by practitioners who have not only devoted especial attention to the diseases about which they have written, but have also enjoyed opportunities for an extensive practical acquaintance with them and whose reputation carries the assurance of their competency justly to appreciate the opinions of others, while it stamps their own doctrines with high and just authority.—*American Medical Journal*.

**DEWEES'S COMPREHENSIVE SYSTEM OF MIDWIFERY**. Illustrated by occasional cases and many engravings. Twelfth edition, with the author's last improvements and corrections. In

**AND MEDICAL TREATMENT OF CHILDREN**. The last edition. In one volume, octavo, extra cloth, \$48 pages. \$3 80

DEWEES'S TREATISE ON THE DISEASES OF THE

## DUNGLISON (ROBLEY), M. D.,

Professor of Institutes of Medicine in the Jefferson Medical College, Philadelphia.

## NEW AND ENLARGED EDITION.

**MEDICAL LEXICON; a Dictionary of Medical Science, containing a concise Explanation of the various Subjects and Terms of Anatomy, Physiology, Pathology, Hygiene, Therapeutics, Pharmacology, Pharmacy, Surgery, Obstetrics, Medical Jurisprudence, Dentistry, &c. Notices of Climate and of Mineral Waters; Formulae for Official, Empirical, and Dietetic Preparations, &c. With French and other Synonymes. Revised and very greatly enlarged. In one very large and handsome octavo volume, of 992 double-columned pages, in small type; strongly bound in leather. Price \$4 00.**

Especial care has been devoted in the preparation of this edition to render it in every respect worthy a continuance of the very remarkable favor which it has hitherto enjoyed. The rapid sale of FIFTEEN large editions, and the constantly increasing demand, show that it is regarded by the profession as the standard authority. Stimulated by this fact, the author has endeavored in the present revision to introduce whatever might be necessary "to make it a satisfactory and desirable—if not indispensable—lexicon, in which the student may search without disappointment for every term that has been legitimated in the nomenclature of the science." To accomplish this, large additions have been found requisite, and the extent of the author's labors may be estimated from the fact that about SIX THOUSAND subjects and terms have been introduced throughout, rendering the whole number of definitions about SIXTY THOUSAND, to accommodate which, the number of pages has been increased by nearly a hundred, notwithstanding an enlargement in the size of the page. The medical press, both in this country and in England, has pronounced the work indispensable to all medical students and practitioners, and the present improved edition will not lose that enviable reputation.

The publishers have endeavored to render the mechanical execution worthy of a volume of such universal use in daily reference. The greatest care has been exercised to obtain the typographical accuracy so necessary in a work of the kind. By the small but exceedingly clear type employed, an immense amount of matter is condensed in its thousand ample pages, while the binding will be found strong and durable. With all these improvements and enlargements, the price has been kept at the former very moderate rate, placing it within the reach of all.

This work, the appearance of the fifteenth edition of which, it has become our duty and pleasure to announce, is perhaps the most stupendous monument of labor and erudition in medical literature. One would hardly suppose after constant use of the preceding editions, where we have never failed to find a sufficiently full explanation of every medical term, that in this edition "about six thousand subjects and terms have been added," with a careful revision and correction of the entire work. It is only necessary to announce the advent of this edition to make it occupy the place of the preceding one on the table of every medical man, as it is without doubt the best and most comprehensive work of the kind which has ever appeared.—*Buffalo Med. Journ.*, Jan. 1868.

The work is a monument of patient research, skilful judgment, and vast physical labor, that will perpetuate the name of the author more effectually than any possible device of stone or metal. Dr. Dunglison deserves the thanks not only of the American profession, but of the whole medical world.—*North Am. Medico-Chir. Review*, Jan. 1868.

A Medical Dictionary better adapted for the wants of the profession than any other with which we are acquainted, and of a character which places it far above comparison and competition.—*Am. Journ. Med. Sciences*, Jan. 1868.

We need only say, that the addition of 6,000 new terms, with their accompanying definitions, may be said to constitute a new work, by itself. We have examined the Dictionary attentively, and are most happy to pronounce it unrivalled of its kind. The erudition displayed, and the extraordinary industry which must have been demanded, in its preparation and perfection, redound to the lasting credit of its author, and have furnished us with a volume indispensable at the present day, to all who would find themselves as stores with the highest standards of medical information.—*Boston Medical and Surgical Journal*, Dec. 31, 1867.

Good lexicons and encyclopedic works generally, are the most labor-saving contrivances which literary men enjoy; and the labor which is required to produce them in the perfect manner of this example is something appalling to contemplate. The author

tells us in his preface that he has added about six thousand terms and subjects to this edition, which, before, was considered universally as the best work of the kind in any language.—*Silliman's Journal*, March, 1868.

He has razed his gigantic structure to the foundations, and remodelled and reconstructed the entire pile. No less than six thousand additional subjects and terms are illustrated and analyzed in this new edition, swelling the grand aggregate to beyond sixty thousand! Thus is placed before the profession a complete and thorough exponent of medical terminology, without rival or possibility of rivalry.—*Nashville Journ. of Med. and Surg.*, Jan. 1868.

It is universally acknowledged, we believe, that this work is incomparably the best and most complete Medical Lexicon in the English language. The amount of labor which the distinguished author has bestowed upon it is truly wonderful, and the learning and research displayed in its preparation are equally remarkable. Comment and commendation are unnecessary, as no one at the present day thinks of purchasing any other Medical Dictionary than this.—*St. Louis Med. and Surg. Journ.*, Jan. 1868.

It is the foundation stone of a good medical library, and should always be included in the first list of books purchased by the medical student.—*Am. Med. Monthly*, Jan. 1868.

A very perfect work of the kind, undoubtedly the most perfect in the English language.—*Med. and Surg. Reporter*, Jan. 1868.

It is now emphatically the Medical Dictionary of the English language, and for it there is no substitute.—*N. H. Med. Journ.*, Jan. 1868.

It is scarcely necessary to remark that any medical library wanting a copy of Dunglison's Lexicon must be imperfect.—*Cin. Lancet*, Jan. 1868.

We have ever considered it the best authority published, and the present edition we may safely say has no equal in the world.—*Pennsylv. Med. Journal*, Jan. 1868.

The most complete authority on the subject to be found in any language.—*Va. Med. Journal*, Feb. '68.

BY THE SAME AUTHOR.

**THE PRACTICE OF MEDICINE. A Treatise on Special Pathology and Therapeutics. Third Edition. In two large octavo volumes, leather, of 1,560 pages. \$3 25.**



DUNGLISON (ROBLEY), M. D.,

Professor of Institutes of Medicine in the Jefferson Medical College, Philadelphia.

**HUMAN PHYSIOLOGY.** Eighth edition. Thoroughly revised and extensively modified and enlarged, with five hundred and thirty-two illustrations. In two large and handsomely printed octavo volumes, extra cloth, of about 1500 pages. \$7 00.

In revising this work for its eighth appearance, the author has spared no labor to render it worthy a continuance of the very great favor which has been extended to it by the profession. The whole contents have been rearranged, and to a great extent remodelled; the investigations which of late years have been so numerous and so important, have been carefully examined and incorporated, and the work in every respect has been brought up to a level with the present state of the subject. The object of the author has been to render it a concise but comprehensive treatise, containing the whole body of physiological science, to which the student and man of science can at all times refer with the certainty of finding whatever they are in search of, fully presented in all its aspects; and on no former edition has the author bestowed more labor to secure this result.

We believe that it can truly be said, no more complete repository of facts upon the subject treated, can anywhere be found. The author has, moreover, that enviable tact at description and that facility and ease of expression which render him peculiarly acceptable to the casual, or the studious reader. This facility, so requisite in setting forth many graver and less attractive subjects, lends additional charms to one always fascinating.—*Boston Med. and Surg. Journal*.

The most complete and satisfactory system of Physiology in the English language.—*Amer. Med. Journal*.

The best work of the kind in the English language.—*Silliman's Journal*.

The present edition the author has made a perfect mirror of the science as it is at the present hour. As a work upon physiology proper, the science of the functions performed by the body, the student will find it all he wishes.—*Nashville Journ. of Med.*

That he has succeeded, most admirably succeeded in his purpose, is apparent from the appearance of an eighth edition. It is now the great encyclopedia on the subject, and worthy of a place in every physician's library.—*Western Lancet*.

BY THE SAME AUTHOR. (A new edition.)

**GENERAL THERAPEUTICS AND MATERIA MEDICA;** adapted for a Medical Text-book. With Indexes of Remedies and of Diseases and their Remedies. SIXTH EDITION, revised and improved. With one hundred and ninety-three illustrations. In two large and handsomely printed octavo vols., extra cloth, of about 1100 pages. \$6 00.

In announcing a new edition of Dr. Dunglison's General Therapeutics and Materia Medica, we have no words of commendation to bestow upon a work whose merits have been heretofore so often and so justly extolled. It must not be supposed, however, that the present is a mere reprint of the previous edition; the character of the author for laborious research, judicious analysis, and clearness of expression, is fully sustained by the numerous additions he has made to the work, and the careful revision to which he has subjected the whole.—*N. A. Medico-Chir. Review*, Jan. 1866.

The work will, we have little doubt, be bought and read by the majority of medical students; its size, arrangement, and reliability recommend it to all; no one, we venture to predict, will study it without profit, and there are few to whom it will not be in some measure useful as a work of reference. The young practitioner, more especially, will find the copious indexes appended to this edition of great assistance in the selection and preparation of suitable formulae.—*Charleston Med. Journ. and Review*, Jan. 1866.

BY THE SAME AUTHOR. (A new Edition.)

**NEW REMEDIES, WITH FORMULÆ FOR THEIR PREPARATION AND ADMINISTRATION.** Seventh edition, with extensive Additions. In one very large octavo volume, extra cloth, of 770 pages. \$3 75.

One of the most useful of the author's works.—*Southern Medical and Surgical Journal*.

This elaborate and useful volume should be found in every medical library, for as a book of reference, for physicians, it is unsurpassed by any other work in existence, and the double index for diseases and for remedies, will be found greatly to enhance its value.—*New York Med. Gazette*.

The great learning of the author, and his remarkable industry in pushing his researches into every source whence information is derivable, have enabled him to throw together an extensive mass of facts and statements, accompanied by full references to authorities; which last feature renders the work practically valuable to investigators who desire to examine the original papers.—*The American Journal of Pharmacy*.

ELLIS (BENJAMIN), M. D.

**THE MEDICAL FORMULARY:** being a Collection of Prescriptions, derived from the writings and practice of many of the most eminent physicians of America and Europe. Together with the usual Dietetic Preparations and Antidotes for Poisons. To which is added an Appendix, on the Endermic use of Medicines, and on the use of Ether and Chloroform. The whole accompanied with a few brief Pharmaceutical and Medical Observations. Eleventh edition, carefully revised and much extended by ROBERT P. THOMAS, M. D., Professor of Materia Medica in the Philadelphia College of Pharmacy. In one volume, 8vo., of about 350 pages. \$2 25. (Just Ready.)

On no previous edition of this work has there been so complete and thorough a revision. The extensive changes in the new United States Pharmacopoeia have necessitated corresponding alterations in the Formulary, to conform to that national standard, while the progress made in the materia medica and the arts of prescribing and dispensing during the last ten years have been carefully noted and incorporated throughout. It is therefore presented as not only worthy a continuance of the favor so long enjoyed, but as more valuable than ever to the practitioner and pharmacist. Those who possess previous editions will find the additional matter of sufficient importance to

## ERICHSEN (JOHN),

Professor of Surgery in University College, London, &amp;c.

**THE SCIENCE AND ART OF SURGERY; BEING A TREATISE ON SURGICAL INJURIES, DISEASES, AND OPERATIONS.** New and improved American, from the second enlarged and carefully revised London edition. Illustrated with over four hundred engravings on wood. In one large and handsome octavo volume, of one thousand closely printed pages, extra cloth, \$4 50; leather, raised bands. \$5 25.

The very distinguished favor with which this work has been received on both sides of the Atlantic has stimulated the author to render it even more worthy of the position which it has so rapidly attained as a standard authority. Every portion has been carefully revised, numerous additions have been made, and the most watchful care has been exercised to render it a complete exponent of the most advanced condition of surgical science. In this manner the work has been enlarged by about a hundred pages, while the series of engravings has been increased by more than a hundred, rendering it one of the most thoroughly illustrated volumes before the profession. The additions of the author having rendered unnecessary most of the notes of the former American editor, but little has been added in this country; some few notes and occasional illustrations have, however, been introduced to elucidate American modes of practice.

It is, in our humble judgment, decidedly the best book of the kind in the English language. Strange that just such books are not oftener produced by public teachers of surgery in this country and Great Britain. Indeed, it is a matter of great astonishment, but no less true than astonishing, that of the many works on surgery republished in this country within the last fifteen or twenty years as text-books for medical students, this is the only one that even approximates to the fulfilment of the peculiar wants of young men just entering upon the study of this branch of the profession.—*Western Jour. of Med. and Surgery.*

Its value is greatly enhanced by a very copious well-arranged index. We regard this as one of the most valuable contributions to modern surgery. To one entering his novitiate of practice, we regard it the most serviceable guide which he can consult. He will find a fulness of detail leading him through every

step of the operation, and not deserting him until the final issue of the case is decided.—*Saturnoscope.*

Embracing, as will be perceived, the whole surgical domain, and each division of itself almost complete and perfect, each chapter full and explicit, each subject faithfully exhibited, we can only express our estimate of it in the aggregate. We consider it an excellent contribution to surgery, as probably the best single volume now extant on the subject, and with great pleasure we add it to our text-books.—*Nashville Journal of Medicine and Surgery.*

Prof. Erichsen's work, for its size, has not been surpassed; his nine hundred and eight pages, profusely illustrated, are rich in physiological, pathological, and operative suggestions, doctrines, details, and processes; and will prove a reliable resource for information, both to physician and surgeon, in the hour of peril.—*N. O. Med. and Surg. Journal.*

## FLINT (AUSTIN), M. D.,

Professor of the Theory and Practice of Medicine in the University of Louisville, &amp;c.

**PHYSICAL EXPLORATION AND DIAGNOSIS OF DISEASES AFFECTING THE RESPIRATORY ORGANS.** In one large and handsome octavo volume, extra cloth, 636 pages. \$3 00.

We regard it, in point both of arrangement and of the marked ability of its treatment of the subjects, as destined to take the first rank in works of this class. So far as our information extends, it has at present no equal. To the practitioner, as well as the student, it will be invaluable in clearing up the diagnosis of doubtful cases, and in shedding light upon difficult phenomena.—*Buffalo Med. Journal.*

A work of original observation of the highest merit. We recommend the treatise to every one who wishes to become a correct auscultator. Based to a very large extent upon cases numerically examined, it carries the evidence of careful study and discrimination upon every page. It does credit to the author, and, through him, to the profession in this country. It is, what we cannot call every book upon auscultation, a readable book.—*Am. Jour. Med. Sciences.*

This volume belongs to a class of works which confer honor upon their authors and enrich the domain of practical medicine. A cursory examination even will satisfy the scientific physician that Dr. Flint in this treatise has added to medical literature

a work based upon original observation, and possessing no ordinary merit.—*N. Y. Journal of Med.*

This is an admirable book, and because of its extraordinary clearness and entire mastery of the subjects discussed, has made itself indispensable to those who are ambitious of a thorough knowledge of physical exploration.—*Nashville Journ. of Med.*

The arrangement of the subjects discussed is easy, natural, such as to present the facts in the most forcible light. Where the author has avoided being tediously minute or diffuse, he has nevertheless fully amplified the more important points. In this respect, indeed, his labors will take precedence, and be the means of inviting to this useful department a more general attention.—*O. Med. and Surg. Journ.*

We hope these few extracts taken from Dr. Flint's work may convey some idea of its character and importance. We would, however, advise every physician to at once place it in his library, feeling assured that it may be consulted with great benefit both by young and old.—*Louisville Review.*

BY THE SAME AUTHOR. (Now Ready.)

**A PRACTICAL TREATISE ON THE DIAGNOSIS, PATHOLOGY, AND TREATMENT OF DISEASES OF THE HEART.** In one neat octavo volume, of about 500 pages, extra cloth. \$2 75.

We do not know that Dr. Flint has written anything which is not first rate; but this, his latest contribution to medical literature, in our opinion, surpasses all the others. The work is most comprehensive in its scope, and most sound in the views it enunciates. The descriptions are clear and methodical; the statements are substantiated by facts, and are made with such simplicity and sincerity, that without them they would carry conviction. The style is admirably clear, direct, and free from dryness. With Dr. Walpole's excellent treatise before us, we have no hesitation in saying that Dr. Flint's book is the best work on the heart in the English language.—*Boston Med. and Surg. Journal.*

We have thus endeavored to present our readers

with the employment of the very words of the distinguished author, wherever it was possible, we have endeavored to condense into the briefest space a general view of his observations and suggestions, and to direct the attention of our brethren to the abounding stores of valuable matter here collected and arranged for their use and instruction. No medical library will hereafter be considered complete without this volume; and we trust it will promptly find its way into the hands of every American student and physician.—*N. Am. Med. Chir. Review.*

With more than pleasure do we hail the advent of this work, for it fills a wide gap on the list of text-books for our schools, and is, for the practitioner, the most valuable practical work of its kind.—*N. O.*

FOWNES (GEORGE), PH. D., &amp;c.

**A MANUAL OF ELEMENTARY CHEMISTRY; Theoretical and Practical.**

With one hundred and ninety-seven illustrations. Edited by ROBERT BRIDGES, M. D. In one large royal 12mo. volume, of 800 pages, extra cloth, \$1 75.

The death of the author having placed the editorial care of this work in the practised hands of Drs. Bence Jones and A. W. Hoffman, everything has been done in its revision which experience could suggest to keep it on a level with the rapid advance of chemical science. The additions requisite to this purpose have necessitated an enlargement of the page, notwithstanding which the work has been increased by about fifty pages. At the same time every care has been used to maintain its distinctive character as a condensed manual for the student, divested of all unnecessary detail or mere theoretical speculation. The additions have, of course, been mainly in the department of Organic Chemistry, which has made such rapid progress within the last few years, but yet equal attention has been bestowed on the other branches of the subject—Chemical Physics and Inorganic Chemistry—to present all investigations and discoveries of importance, and to keep up the reputation of the volume as a complete manual of the whole science, admirably adapted for the learner. By the use of a small but exceedingly clear type the matter of a large octavo is compressed within the convenient and portable limits of a moderate sized duodecimo, and at the very low price affixed, it is offered as one of the cheapest volumes before the profession.

Dr. Fownes' excellent work has been universally recognized everywhere in his own and this country, as the best elementary treatise on chemistry in the English tongue, and is very generally adopted, we believe, as the standard text-book in all our colleges, both literary and scientific.—*Charleston Med. Journ. and Review.*

A standard manual, which has long enjoyed the reputation of embodying much knowledge in a small space. The author has achieved the difficult task of condensation with masterly tact. His book is concise without being dry, and brief without being too dogmatical or general.—*Virginia Med. and Surgical Journal.*

The work of Dr. Fownes has long been before the public, and its merits have been fully appreciated as the best text-book on chemistry now in existence. We do not, of course, place it in a rank superior to the works of Brande, Graham, Turner, Gregory, or Gmelin, but we say that, as a work for students, it is preferable to any of them.—*London Journal of Medicine.*

A work well adapted to the wants of the student. It is an excellent exposition of the chief doctrines and facts of modern chemistry. The size of the work, and still more the condensed yet perspicuous style in which it is written, abserve it from the charges very properly urged against most manuals termed popular.—*Edinburgh Journal of Medical Sciences.*

**FISKE FUND PRIZE ESSAYS.—THE EFFECTS OF CLIMATE ON TUBERCULOUS DISEASE.** By EDWIN LEE, M.R.C.S., London, and THE INFLUENCE OF PREGNANCY ON THE DEVELOPMENT OF TUBERCLES By

EDWARD WARREN, M.D., of Edenton, N. C. Together in one neat 8vo. volume, extra cloth. \$1 00. **FRICK ON RENAL AFFECTIONS;** their Diagnosis and Pathology. With illustrations. One volume, royal 12mo., extra cloth. 75 cents.

FERGUSON (WILLIAM), F. R. S.,

Professor of Surgery in King's College, London, &c.

**A SYSTEM OF PRACTICAL SURGERY.** Fourth American, from the third and enlarged London edition. In one large and beautifully printed octavo volume, of about 700 pages, with 393 handsome illustrations, leather. \$3 00.

GRAHAM (THOMAS), F. R. S.

**THE ELEMENTS OF INORGANIC CHEMISTRY,** including the Applications of the Science in the Arts. New and much enlarged edition, by HENRY WATTS and ROBERT BRIDGES, M. D. Complete in one large and handsome octavo volume, of over 800 very large pages, with two hundred and thirty-two wood-cuts, extra cloth. \$4 50.

\* \* Part II., completing the work from p. 431 to end, with Index, Title Matter, &c., may be had separate, cloth backs and paper sides. Price \$2 50.

From Prof. E. N. Horsford, *Harvard College.*

It has, in its earlier and less perfect editions, been familiar to me, and the excellence of its plan and the clearness and completeness of its discussions, have long been my admiration.

No reader of English works on this science can

afford to be without this edition of Prof. Graham's Elements.—*Silliman's Journal*, March, 1868.

From Prof. Wolcott Gibbs, *N. Y. Free Academy.*

The work is an admirable one in all respects, and its republication here cannot fail to exert a positive influence upon the progress of science in this country.

GRIFFITH (ROBERT E.), M. D., &amp;c.

**A UNIVERSAL FORMULARY,** containing the methods of Preparing and Administering Official and other Medicines. The whole adapted to Physicians and Pharmacologists. SECOND EDITION, thoroughly revised, with numerous additions, by ROBERT P. THOMAS, M. D., Professor of Materia Medica in the Philadelphia College of Pharmacy. In one large and handsome octavo volume, extra cloth, of 650 pages, double columns. \$3 25.

It was a work requiring much perseverance, and when published was looked upon as by far the best work of its kind that had issued from the American press. Prof. Thomas has certainly "improved," as well as added to this Formulary, and has rendered it additionally deserving of the confidence of pharmacologists and physicians.—*Am. Journal of Pharmacy.*

We are happy to announce a new and improved edition of this, one of the most valuable and useful works that have emanated from an American pen. It would do credit to any country, and will be found of daily usefulness to practitioners of medicine; it is better adapted to their purposes than the dispensatories.—*Southern Med. and Surg. Journal.*

It is one of the most useful books a country practi-

This is a work of six hundred and fifty-one pages, embracing all on the subject of preparing and administering medicines that can be desired by the physician and pharmacist.—*Western Lancet.*

The amount of useful, every-day matter for a practicing physician, is really immense.—*Boston Med. and Surg. Journal.*

This edition has been greatly improved by the revision and ample additions of Dr. Thomas, and is now, we believe, one of the most complete works of its kind in any language. The additions amount to about seventy pages, and no effort has been spared to include in them all the recent improvements. A work of this kind appears to us indispensable to the physician, and there is none we can more cordially

GROSS (SAMUEL D.), M. D.,

Professor of Surgery in the Jefferson Medical College of Philadelphia, &amp;c.

Enlarged Edition.

**A SYSTEM OF SURGERY: Pathological, Diagnostic, Therapeutic, and Operative.** Illustrated by TWELVE HUNDRED AND TWENTY-SEVEN ENGRAVINGS. Second edition, much enlarged and carefully revised. In two large and beautifully printed octavo volumes, of about twenty-two hundred pages; strongly bound in leather. Price \$13.

The exhaustion in little more than two years of a large edition of so elaborate and comprehensive a work as this is the best evidence that the author was not mistaken in his estimate of the want which existed of a complete American System of Surgery, presenting the science in all its necessary details and in all its branches. That he has succeeded in the attempt to supply this want is shown not only by the rapid sale of the work, but also by the very favorable manner in which it has been received by the organs of the profession in this country and in Europe, and by the fact that a translation is now preparing in Holland—a mark of appreciation not often bestowed on any scientific work so extended in size.

The author has not been insensible to the kindness thus bestowed upon his labors, and in revising the work for a new edition he has spared no pains to render it worthy of the favor with which it has been received. Every portion has been subjected to close examination and revision; any deficiencies apparent have been supplied, and the results of recent progress in the science and art of surgery have been everywhere introduced; while the series of illustrations has been enlarged by the addition of nearly three hundred wood-cuts, rendering it one of the most thoroughly illustrated works ever laid before the profession. To accommodate these very extensive additions, the work has been printed upon a smaller type, so that notwithstanding the very large increase in the matter and value of the book, its size is more convenient and less cumbersome than before. Every care has been taken in the printing to render the typographical execution unexceptionable, and it is confidently presented as a work in every way worthy of a place in even the most limited library of the practitioner or student.

Has Dr. Gross satisfactorily fulfilled this object? A careful perusal of his volumes enables us to give an answer in the affirmative. Not only has he given to the reader an elaborate and well-written account of his own vast experience, but he has not failed to embody in his pages the opinions and practice of surgeons in this and other countries of Europe. The result has been a work of such completeness, that it has no superior in the systematic treatises on surgery which have emanated from English or Continental authors. It has been justly objected that these have been far from complete in many essential particulars, many of them having been deficient in some of the most important points which should characterize such works. Some of them have been elaborate—too elaborate—with respect to certain diseases, while they have merely glanced at, or given an unsatisfactory account of, others equally important to the surgeon. Dr. Gross has avoided this error, and has produced the most complete work that has yet issued from the press on the science and practice of surgery. It is not, strictly speaking, a Dictionary of Surgery, but it gives to the reader all the information that he may require for his treatment of surgical diseases. Having said so much, it might appear superfluous to add another word; but it is only due to Dr. Gross to state that he has embraced the opportunity of transferring to his pages a vast number of engravings from English and other authors, illustrative of the pathology and treatment of surgical diseases. To these are added several hundred original wood-cuts. The work altogether commends itself to the attention of British surgeons, from whom it cannot fail to meet with extensive patronage.—*London Lancet*, Sept. 1, 1860.

Of Dr. Gross's treatise on Surgery we can say no more than that it is the most elaborate and complete work on this branch of the healing art which has ever been published in any country. A systematic work, it admits of no analytical review; but, did our space permit, we should gladly give some extracts from it, to enable our readers to judge of the classical style of the author, and the exhaustive way in which each subject is treated.—*Dublin Quarterly Journal of Med. Sciences*.

The work is so superior to its predecessors in matter and extent, as well as in illustrations and style of publication, that we can honestly recommend it as the best work of the kind to be taken home by the young practitioner.—*Am. Med. Journ.*

With pleasure we record the completion of this long-anticipated work. The reputation which the author has for many years sustained, both as a surgeon and as a writer, had prepared us to expect a treatise of great excellence and originality; but we confess we were by no means prepared for the work which is before us—the most complete treatise upon surgery ever published, either in this or any other country, and we might, perhaps, safely say, the most original. There is no subject belonging properly to surgery which has not received from the author a due share of attention. Dr. Gross has supplied a want in surgical literature which has long been felt by practitioners; he has furnished us with a complete practical treatise upon surgery in all its departments. As Americans, we are proud of the achievement; as surgeons, we are most sincerely thankful to him for his extraordinary labors in our behalf.—*N. Y. Review and Buffalo Med. Journal*.

BY THE SAME AUTHOR.

**ELEMENTS OF PATHOLOGICAL ANATOMY.** Third edition, thoroughly revised and greatly improved. In one large and very handsome octavo volume, with about three hundred and fifty beautiful illustrations, of which a large number are from original drawings, extra cloth. \$4 75.

The very rapid advances in the Science of Pathological Anatomy during the last few years have rendered essential a thorough modification of this work, with a view of making it a correct exponent of the present state of the subject. The very careful manner in which this task has been executed, and the amount of alteration which it has undergone, have enabled the author to say that "with the many changes and improvements now introduced, the work may be regarded almost as a new treatise," while the efforts of the author have been seconded as regards the mechanical execution of the volume, rendering it one of the handsomest productions of the American press.

We most sincerely congratulate the author on the successful manner in which he has accomplished his proposed object. His book is most admirably calculated to fill up a blank which has long been felt to exist in this department of medical literature, and as such must become very widely circulated amongst all classes of the profession.—*Dublin Quarterly Journ. of Med. Sciences*, Nov. 1867.

We have been favorably impressed with the general manner in which Dr. Gross has executed his task of affording a comprehensive digest of the present state of the literature of Pathological Anatomy, and have much pleasure in recommending his work to our readers, as we believe one well deserving of diligent perusal and careful study.—*Memorial Med. Chron.*, Sept. 1867.

BY THE SAME AUTHOR.

**A PRACTICAL TREATISE ON FOREIGN BODIES IN THE AIR-PAS-**

## GROSS (SAMUEL D.), M. D.,

Professor of Surgery in the Jefferson Medical College of Philadelphia, &amp;c.

**PRACTICAL TREATISE ON THE DISEASES, INJURIES, AND MALFORMATIONS OF THE URINARY BLADDER, THE PROSTATE GLAND, AND THE URETHRA.** Second Edition, revised and much enlarged, with one hundred and eighty-four illustrations. In one large and very handsome octavo volume, of over nine hundred pages, extra cloth, \$4 75.

Philosophical in its design, methodical in its arrangement, ample and sound in its practical details, it may in truth be said to leave scarcely anything to be desired on so important a subject.—*Boston Med. and Surg. Journal*.

Whoever will peruse the vast amount of valuable practical information it contains, will, we think,

agree with us, that there is no work in the English language which can make any just pretensions to be its equal.—*N. Y. Journal of Medicine*.

A volume replete with truths and principles of the utmost value in the investigation of these diseases.—*American Medical Journal*.

## GRAY (HENRY), F. R. S.,

Lecturer on Anatomy at St. George's Hospital, London, &amp;c.

**ANATOMY, DESCRIPTIVE AND SURGICAL. The Drawings by H. V. CARTER, M. D., late Demonstrator on Anatomy at St. George's Hospital; the Dissections jointly by the AUTHOR and Dr. CARTER.** Second American, from the second revised and improved London edition. In one magnificent imperial octavo volume, of over 800 pages, with 388 large and elaborate engravings on wood. Price in extra cloth, \$6 50.

The speedy exhaustion of a large edition of this work is sufficient evidence that its plan and execution have been found to present superior practical advantages in facilitating the study of Anatomy. In presenting it to the profession a second time, the author has availed himself of the opportunity to supply any deficiencies which experience in its use had shown to exist, and to correct any errors of detail, to which the first edition of a scientific work on so extensive and complicated a science is liable. These improvements have resulted in some increase in the size of the volume, while twenty-six new wood-cuts have been added to the beautiful series of illustrations which form so distinctive a feature of the work. The American edition has been passed through the press under the supervision of a competent professional man, who has taken every care to render it in all respects accurate, and it is now presented, without any increase of price, as fitted to maintain and extend the popularity which it has everywhere acquired.

With little trouble, the busy practitioner whose knowledge of anatomy may have become obscured by want of practice, may now reanimate his former anatomical lore, and be ready for any emergency. It is to this class of individuals, and not to the student alone, that this work will ultimately tend to be of most inestimable advantage, and we feel satisfied that the library of the medical man will soon be considered incomplete in which a copy of this work does not exist.—*Madras Quarterly Journal of Med. Science*, July, 1861.

This edition is much improved and enlarged, and contains several new illustrations by Dr. Westmacott. The volume is a complete companion to the dissecting-room, and saves the necessity of the student possessing a variety of "Manuals."—*The London Lancet*, Feb. 9, 1861.

The work before us is one entitled to the highest praise, and we accordingly welcome it as a valuable addition to medical literature. Intermediate in fulness of detail between the treatises of Saarpay and of Wilson, its characteristic merit lies in the number and excellence of the engravings it contains. Most of these are original, of much larger than ordinary size, and admirably executed. The various parts are also lettered after the plan adopted in Holden's Osteology. It would be difficult to over-estimate the advantages offered by this mode of pictorial illustration. Bones, ligaments, muscles, bloodvessels, and nerves are each in turn figured, and marked with their appropriate names; thus enabling the student to comprehend, at a glance, what would otherwise often be ignored, or at any rate, acquired only by prolonged and irksome application. In conclusion, we heartily commend the

work of Mr. Gray to the attention of the medical profession, feeling certain that it should be regarded as one of the most valuable contributions ever made to educational literature.—*N. Y. Monthly Review*, Dec. 1859.

In this view, we regard the work of Mr. Gray as far better adapted to the wants of the profession, and especially of the student, than any treatise on anatomy yet published in this country. It is destined, we believe, to supersede all others, both as a manual of dissections, and a standard of reference to the student of general or relative anatomy.—*N. Y. Journal of Medicine*, Nov. 1859.

In our judgment, the mode of illustration adopted in the present volume cannot but present many advantages to the student of anatomy. To the zealous disciple of Vesalius, earnestly desirous of real improvement, the book will certainly be of immense value; but, at the same time, we must also confess that to those simply desirous of "cramming" it will be an undoubted godsend. The peculiar value of Mr. Gray's mode of illustration is nowhere more markedly evident than in the chapter on osteology, and especially in those portions which treat of the bones of the head and of their development. The study of these parts is thus made one of comparative ease, if not of positive pleasure; and those hagsbears of the student, the temporal and sphenoid bones, are shorn of half their terrors. It is, in our estimation, an admirable and complete text-book for the student, and a useful work of reference for the practitioner; its pictorial character forming a novel element, to which we have already sufficiently alluded.—*Am. Journ. Med. Sci.*, July, 1859.

**GIBSON'S INSTITUTES AND PRACTICE OF SURGERY.** Eighth edition, improved and altered. With thirty-four plates. In two handsome octavo volumes, containing about 1,000 pages, leather, raised band. \$6 50.

**GARDNER'S MEDICAL CHEMISTRY**, for the use of Students and the Profession. In one royal 12mo. vol., cloth, pp. 396, with wood-cuts. \$1.

**GLUGE'S ATLAS OF PATHOLOGICAL HISTOLOGY.** Translated, with Notes and Additions, by JOSEPH LEIDY, M. D. In one volume, very large imperial quarto, extra cloth, with 320 copper-plate figures, plain and colored. \$5 00.

**TICE OF AUSCULTATION AND OTHER MODES OF PHYSICAL DIAGNOSIS, IN DISEASES OF THE LUNGS AND HEART.** Second edition. 1 vol. royal 12mo., ex. cloth, pp. 304 \$1 00.

**HOLLAND'S MEDICAL NOTES AND REFLECTIONS.** From the third London edition. In one handsome octavo volume, extra cloth. \$3.

**HORNRR'S SPECIAL ANATOMY AND HISTOLOGY.** Eighth edition. Extensively revised and modified. In two large octavo volumes, extra cloth, of more than 1000 pages, with over 300

HAMILTON (FRANK H.), M. D.,

Professor of Surgery in the Long Island College Hospital.

**A PRACTICAL TREATISE ON FRACTURES AND DISLOCATIONS.**

Second edition, revised and improved. In one large and handsome octavo volume, of over 750 pages, with nearly 300 illustrations, extra cloth, \$4 75. (*Just Ready*, May, 1883.)

The early demand for a new edition of this work shows that it has been successful in securing the confidence of the profession as a standard authority for consultation and reference on its important and difficult subject. In again passing it through the press, the author has taken the opportunity to revise it carefully, and introduce whatever improvements have been suggested by further experience and observation. An additional chapter on Gun-shot Fractures will be found to adapt it still more fully to the exigencies of the time.

Among the many good workers at surgery of whom America may now boast not the least is Frank Hastings Hamilton; and the volume before us (we say it with a pang of wounded patriotism) the best and handiest book on the subject in the English language. It is in vain to attempt a review of it; nearly as vain to seek for any sins, either of commission or omission. We have seen no work on practical surgery which we would sooner recommend to our brother surgeons, especially those of "the services," or those whose practice lies in districts where a man has necessarily to rely on his own unaided resources. The practitioner will find in it directions for nearly every possible accident, easily found and comprehended; and much pleasant reading for him to muse over in the after consideration of his cases.—*Edinburgh Med. Journ.* Feb. 1881.

This is a valuable contribution to the surgery of most important affections, and is the more welcome, inasmuch as at the present time we do not possess a single complete treatise on Fractures and Dislocations in the English language. It has remained for our American brother to produce a complete treatise upon the subject, and bring together in a convenient form those alterations and improvements that have been made from time to time in the treatment of these affections. One great and valuable feature in the work before us is the fact that it comprises all the improvements introduced into the practice of both English and American surgery, and though far from omitting mention of our continental neighbors, the author by no means encourages the notion—but too prevalent in some quarters—that nothing is good unless imported from France or Germany. The latter half of the work is devoted to the consideration of the various dislocations and their appropriate treatment, and its merit is fully equal to that of the preceding portion.—*The London Lancet*, May 5, 1880.

It is emphatically the book upon the subjects of which it treats, and we cannot doubt that it will continue so to be for an indefinite period of time.

When we say, however, that we believe it will at once take its place as the best book for consultation by the practitioner; and that it will form the most complete, available, and reliable guide in emergencies of every nature connected with its subjects; and also that the student of surgery may make it his textbook with entire confidence, and with pleasure also, from its agreeable and easy style—we think our own opinion may be gathered as to its value.—*Boston Medical and Surgical Journal*, March 1, 1880.

The work is concise, judicious, and accurate, and adapted to the wants of the student, practitioner, and investigator, honorable to the author and to the profession.—*Chicago Med. Journal*, March, 1880.

We regard this work as an honor not only to its author, but to the profession of our country. Were we to review it thoroughly, we could not convey to the mind of the reader more forcibly our honest opinion expressed in the few words—we think it the best book of its kind extant. Every man interested in surgery will soon have this work on his desk. He who does not, will be the loser.—*New Orleans Medical News*, March, 1880.

Dr. Hamilton is fortunate in having succeeded in filling the void, so long felt, with what cannot fail to be at once accepted as a model monograph in some respects, and a work of classical authority. We sincerely congratulate the profession of the United States on the appearance of such a publication from one of their number. We have reason to be proud of it as an original work, both in a literary and scientific point of view, and to esteem it as a valuable guide in a most difficult and important branch of study and practice. On every account, therefore, we hope that it may soon be widely known abroad as an evidence of genuine progress on this side of the Atlantic, and further, that it may be still more widely known at home as an authoritative teacher from which every one may profitably learn, and as affording an example of honest, well-directed, and untiring industry in authorship which every surgeon may emulate.—*Am. Med. Journal*, April, 1880.

HODGE (HUGH L.), M. D.,

Professor of Midwifery and the Diseases of Women and Children in the University of Pennsylvania, &amp;c.

**ON DISEASES PECULIAR TO WOMEN, including Displacements of the**

Uterus. With original illustrations. In one beautifully printed octavo volume, of nearly 500 pages, extra cloth. \$3 25.

We will say at once that the work fulfils its object capitally well; and we will moreover venture the assertion that it will inaugurate an improved practice throughout this whole country. The secrets of the author's success are so clearly revealed that the attentive student cannot fail to insure a goodly portion of similar success in his own practice. It is a credit to all medical literature; and we add, that the physician who does not place it in his library, and who does not faithfully consult its pages, will lose a vast deal of knowledge that would be most useful to himself and beneficial to his patients. It is a practical work of the highest order of merit; and it will take rank as such immediately.—*Maryland and Virginia Medical Journal*, Feb. 1881.

This contribution towards the elucidation of the pathology and treatment of some of the diseases peculiar to women, cannot fail to meet with a favorable reception from the medical profession. The character of the particular maladies of which the work before us treats; their frequency, variety, and obscurity; the amount of malaise and even of actual suffering by which they are invariably attended; their obstinacy, the difficulty with which they are overcome, and their disposition again and again to

recur—these, taken in connection with the entire competency of the author to render a correct account of their nature, their causes, and their appropriate management—his ample experience, his matured judgment, and his perfect conscientiousness—invest this publication with an interest and value to which few of the medical treatises of a recent date can lay a stronger, if, perchance, an equal claim.—*Am. Journ. Med. Sciences*, Jan. 1881.

Indeed, although no part of the volume is not eminently deserving of perusal and study, we think that the nine chapters devoted to this subject, are especially so, and we know of no more valuable monograph upon the symptoms, prognosis, and management of these annoying maladies than is constituted by this part of the work. We cannot but regard it as one of the most original and most practical works of the day; one which every accoucheur and physician should most carefully read; for we are persuaded that he will arise from its perusal with new ideas, which will induce him into a more rational practice in regard to many a suffering female, who may have placed her health in his hands.—*British American Journal*, Feb. 1881.

HODGE (HUGH L.), M. D.,

Late Professor of Midwifery, &amp;c., in the University of Pennsylvania.

**PRINCIPLES AND PRACTICE OF OBSTETRICS.** In one large quarto volume of over 550 pages, with one hundred and fifty-eight figures on thirty-two beautifully executed lithographic plates, and numerous wood-cuts in the text. (*Just Ready.*)

This work, embodying the results of an extensive practice for more than forty years, cannot fail to prove of the utmost value to all who are engaged in this department of medicine. The author's position as one of the highest authorities on the subject in this country is well known, and the fruit of his ripe experience and long observation, carefully matured and elaborated, must serve as an invaluable text-book for the student and an unfailing counsel for the practitioner in the emergencies which so frequently arise in obstetric practice.

The illustrations will form a novel feature in the work. The lithographic plates are all original, and to insure their absolute accuracy they have all been copied from photographs taken expressly for the purpose. In ordinary obstetrical plates, the positions of the fetus are represented by diagrams or sections of the patient, which are of course purely imaginary, and their correctness is scarcely more than a matter of chance with the artist. Their beauty as pictures is thereby increased without corresponding utility to the student, as in practice he must for the most part depend for his diagnosis upon the relative positions of the fetal skull and the pelvic bones of the mother. It is, therefore, desirable that the points upon which he is in future to rely, should form the basis of his instruction, and consequently in the preparation of these illustrations the skeleton has alone been used, and the aid of photography invoked, by which a series of representations has been secured of the strictest and most rigid accuracy. It is easy to recognize the value thus added to the very full details on the subject of the MECHANISM OF LABOUR with which the work abounds.

It may be added that no pains or expense will be spared to render the mechanical execution of the volume worthy in every respect of the character and value of the teachings it contains.

HABERSHON (S. O.), M. D.,

Assistant Physician to and Lecturer on Materia Medica and Therapeutics at Guy's Hospital, &amp;c.

**PATHOLOGICAL AND PRACTICAL OBSERVATIONS ON DISEASES OF THE ALIMENTARY CANAL, OESOPHAGUS, STOMACH, CÆCUM, AND INTESTINES.** With illustrations on wood. In one handsome octavo volume of 312 pages, extra cloth \$1 75.

HOBLYN (RICHARD D.), M. D.

**A DICTIONARY OF THE TERMS USED IN MEDICINE AND THE COLLATERAL SCIENCES.** A new American edition. Revised, with numerous Additions, by ISAAC HAYS, M. D., editor of the "American Journal of the Medical Sciences." In one large royal 12mo. volume, leather, of over 500 double columned pages. \$1 50.

To both practitioner and student, we recommend this dictionary as being convenient in size, accurate in definition, and sufficiently full and complete for ordinary consultation.—*Charleston Med. Journ.*

We know of no dictionary better arranged and adapted. It is not encumbered with the obsolete terms of a bygone age, but it contains all that are now in

use; embracing every department of medical science down to the very latest date.—*Western Lancet.*

Hoblyn's Dictionary has long been a favorite with us. It is the best book of definitions we have, and ought always to be upon the student's table.—*Southern Med. and Surg. Journal.*

JONES (T. WHARTON), F. R. S.,

Professor of Ophthalmic Medicine and Surgery in University College, London, &amp;c.

**THE PRINCIPLES AND PRACTICE OF OPHTHALMIC MEDICINE AND SURGERY.** With one hundred and seventeen illustrations. Third and revised American, with additions from the second London edition. In one handsome octavo volume, extra cloth, of 455 pages. \$3 00.

Seven years having elapsed since the appearance of the last edition of this standard work, very considerable additions have been found necessary to adapt it thoroughly to the advance of ophthalmic science. The introduction of the ophthalmoscope has resulted in adding greatly to our knowledge of the pathology of the diseases of the eye, particularly of its more deeply seated tissues, and corresponding improvements in medical treatment and operative procedures have been introduced. All these matters the editor has endeavoured to add, bearing in mind the character of the volume as a condensed and practical manual. To accommodate this unavoidable increase in the size of the work, its form has been changed from a duodecimo to an octavo, and it is presented as worthy a continuance of the favour which has been bestowed on former editions.

A complete series of "test-types" for examining the accommodating power of the eye, will be found an important and useful addition.

JONES (C. HANDFIELD), F. R. S., & EDWARD H. SIEVEKING, M. D.,

Assistant Physicians and Lecturers in St. Mary's Hospital, London.

**A MANUAL OF PATHOLOGICAL ANATOMY.** First American Edition, Revised. With three hundred and ninety-seven handsome wood engravings. In one large and beautiful octavo volume of nearly 750 pages, extra cloth. \$3 75.

As a concise text-book, containing, in a condensed form, a complete outline of what is known in the domain of Pathological Anatomy, it is perhaps the best work in the English language. Its great merit consists in its completeness and brevity, and in this

obliged to glean from a great number of monographs, and the field was so extensive that but few cultivated it with any degree of success. As a simple work of reference, therefore, it is of great value to the student of pathological anatomy, and should be in

**KIRKES (WILLIAM SENHOUSE), M. D.,**  
 Demonstrator of Morbid Anatomy at St. Bartholomew's Hospital, &c.

**A MANUAL OF PHYSIOLOGY.** A new American, from the third and improved London edition. With two hundred illustrations. In one large and handsome royal 12mo. volume, extra cloth. pp. 568. \$2 00.

This is a new and very much improved edition of Dr. Kirkes' well-known Handbook of Physiology. It combines conciseness with completeness, and is, therefore, admirably adapted for consultation by the busy practitioner.—*Dublin Quarterly Journal*.

One of the very best handbooks of Physiology we possess—presenting just such an outline of the science as the student requires during his attendance upon a course of lectures, or for reference whilst preparing for examination.—*Am. Medical Journal*.

Its excellence is in its compactness, its clearness,

and its carefully sifted authorities. It is the most convenient of text-books. These gentlemen, Messrs. Kirkes and Paget, have the gift of telling us what we want to know, without thinking it necessary to tell us all they know.—*Boston Med. and Surg. Journal*.

For the student beginning this study, and the practitioner who has but leisure to refresh his memory, this book is invaluable, as it contains all that it is important to know.—*Charleston Med. Journal*.

**KNAPP'S TECHNOLOGY;** or, Chemistry applied to the Arts and to Manufactures. Edited by Dr. RONALDS, Dr. RICHARDSON, and Prof. W. R. JOHNSON. In two handsome 8vo. vols., extra cloth, with about 600 wood-engravings. \$6 00.

**LAYCOCK'S LECTURES ON THE PRINCIPLES AND METHODS OF MEDICAL OBSERVATION AND RESEARCH.** For the Use of Advanced Students and Junior Practitioners. In one royal 12mo. volume, extra cloth. Price \$1.

**LALLEMAND AND WILSON.**

**A PRACTICAL TREATISE ON THE CAUSES, SYMPTOMS, AND TREATMENT OF SPERMATORRHOEA.** By M. LALLEMAND. Translated and edited by HENRY J. McDUGALL. Third American edition. To which is added — ON DISEASES OF THE VESICULÆ SEMINALES; AND THEIR ASSOCIATED ORGANS. With special reference to the Morbid Secretions of the Prostatic and Urethral Mucous Membrane. By MARRIE WILSON, M. D. In one neat octavo volume, of about 400 pp., extra cloth. \$2 00.

**LA ROCHE (R.), M. D., &c.**

**YELLOW FEVER,** considered in its Historical, Pathological, Etiological, and Therapeutical Relations. Including a Sketch of the Disease as it has occurred in Philadelphia from 1699 to 1854, with an examination of the connections between it and the fevers known under the same name in other parts of temperate as well as in tropical regions. In two large and handsome octavo volumes of nearly 1500 pages, extra cloth. \$7 00.

From Professor S. H. Dickson, Charleston, S. C., September 18, 1856.

A monument of intelligent and well applied research, almost without example. It is, indeed, in itself, a large library, and is destined to constitute the special resort as a book of reference, in the subject of which it treats, to all future time.

We have not time at present, engaged as we are, by day and by night, in the work of combating this very disease, now prevailing in our city, to do more than give this cursory notice of what we consider undoubtedly the most able and erudite medical publication our country has yet produced. But in view of the startling fact, that this, the most malign

and unmanageable disease of modern times, has for several years been prevailing in our country to a greater extent than ever before; that it is no longer confined to either large or small cities, but penetrates country villages, plantations, and farm-houses; that it is treated with scarcely better success now than thirty or forty years ago; that there is vast mischief done by ignorant pretenders to knowledge in regard to the disease, and in view of the probability that a majority of southern physicians will be called upon to treat the disease, we trust that this able and comprehensive treatise will be very generally read in the south.—*Memphis Med. Recorder*.

BY THE SAME AUTHOR.

**PNEUMONIA;** its Supposed Connection, Pathological and Etiological, with Autumnal Fevers, including an Inquiry into the Existence and Morbid Agency of Malaria. In one handsome octavo volume, extra cloth, of 500 pages. \$3 00.

**LAWRENCE (W.), F. R. S., &c.**

**A TREATISE ON DISEASES OF THE EYE.** A new edition, edited, with numerous additions, and 243 illustrations, by ISAAC HAYS, M. D., Surgeon to Will's Hospital, &c. In one very large and handsome octavo volume, of 950 pages, strongly bound in leather with raised bands. \$7 00.

**LUDLOW (J. L.), M. D.**

**A MANUAL OF EXAMINATIONS** upon Anatomy, Physiology, Surgery, Practice of Medicine, Obstetrics, Materia Medica, Chemistry, Pharmacy, and Therapeutics. To which is added a Medical Formulary. Third edition, thoroughly revised and greatly extended and enlarged. With 370 illustrations. In one handsome royal 12mo. volume, of 816 large pages, extra cloth, \$2 50.

We know of no better companion for the student | crammed into his head by the various professors to  
 ring the hours spent in the lecture room, or to re- | whom he is compelled to listen.—*Western Lancet*.



LEHMANN (C. G.)

**PHYSIOLOGICAL CHEMISTRY.** Translated from the second edition by GEORGE E. DAY, M. D., F. R. S., &c., edited by R. E. ROGERS, M. D., Professor of Chemistry in the Medical Department of the University of Pennsylvania, with illustrations selected from Funke's Atlas of Physiological Chemistry, and an Appendix of plates. Complete in two large and handsome octavo volumes, extra cloth, containing 1200 pages, with nearly two hundred illustrations. \$6 00.

The work of Lehmann stands unrivalled as the most comprehensive book of reference and information extant on every branch of the subject on which it treats.—*Edinburgh Journal of Medical Science.*

The most important contribution as yet made to Physiological Chemistry.—*Am. Journal Med. Sciences*, Jan. 1866.

BY THE SAME AUTHOR.

**MANUAL OF CHEMICAL PHYSIOLOGY.** Translated from the German, with Notes and Additions, by J. CHESTON MORRIS, M. D., with an Introductory Essay on Vital Force, by Professor SAMUEL JACKSON, M. D., of the University of Pennsylvania. With illustrations on wood. In one very handsome octavo volume, extra cloth, of 336 pages. \$2 25.

LYONS (ROBERT D.), K. C. C.,

Late Pathologist in-chief to the British Army in the Crimea, &amp;c.

**A TREATISE ON FEVER;** or, selections from a course of Lectures on Fever. Being part of a course of Theory and Practice of Medicine. In one neat octavo volume, of 362 pages, extra cloth; \$2 00. (*Just Issued.*)

This is an admirable work upon the most remarkable and most important class of diseases to which mankind are liable.—*Med. Journ. of N. Carolina*, May, 1861.

We have great pleasure in recommending Dr.

Lyons' work on Fever to the attention of the profession. It is a work which cannot fail to enhance the author's previous well-earned reputation, as a diligent, careful, and accurate observer.—*British Med. Journal*, March 2, 1861.

MEIGS (CHARLES D.), M. D.,

Lately Professor of Obstetrics, &amp;c. in the Jefferson Medical College, Philadelphia.

**OBSTETRICS: THE SCIENCE AND THE ART.** Fourth edition, revised and improved. With one hundred and twenty-nine illustrations. In one beautifully printed octavo volume, of seven hundred and thirty large pages, extra cloth, \$4 00.

FROM THE AUTHOR'S PREFACE.

"In this edition I have endeavored to amend the work by changes in its form; by careful corrections of many expressions, and by a few omissions and some additions as to the text.

"The Student will find that I have recast the article on *Placenta Prævia*, which I was led to do out of my desire to notice certain new modes of treatment which I regarded as not only ill founded as to the philosophy of our department, but dangerous to the people.

"In changing the form of my work by dividing it into paragraphs or sections, numbered from 1 to 959, I thought to present to the reader a common-place book of the whole volume. Such a table of contents ought to prove both convenient and useful to a Student while attending public lectures."

A work which has enjoyed so extensive a reputation and has been received with such general favor, requires only the assurance that the author has labored assiduously to embody in his new edition whatever has been found necessary to render it fully on a level with the most advanced state of the subject. Both as a text-book for the student and as a reliable work of reference for the practitioner, it is therefore to be hoped that the volume will be found worthy a continuance of the confidence reposed in previous editions.

BY THE SAME AUTHOR. (*Just Issued.*)

**WOMAN: HER DISEASES AND THEIR REMEDIES.** A Series of Lectures to his Class. Fourth and Improved edition. In one large and beautifully printed octavo volume, extra cloth, of over 700 pages. \$3 50.

In other respects, in our estimation, too much cannot be said in praise of this work. It abounds with beautiful passages, and for conciseness, for originality, and for all that is commendable in a work on the diseases of females, it is not excelled, and probably not equalled in the English language. On the whole, we know of no work on the diseases of women which we can so cordially commend to the student and practitioner as the one before us.—*Ohio Med. and Surg. Journal*.

The body of the book is worthy of attentive consideration, and is evidently the production of a clever, thoughtful, and sagacious physician. Dr. Meigs's letters on the diseases of the external organs, contain many interesting and rare cases, and many instructive observations. We take our leave of Dr. Meigs, with a high opinion of his talents and originality.—*The British and Foreign Medico-Chirurgical Review*.

Every chapter is replete with practical instruction, and bears the impress of being the composition of an acute and experienced mind. There is a terse-

which cannot fail to recommend the volume to the attention of the reader.—*Rankin's Abstract*.

It contains a vast amount of practical knowledge, by one who has accurately observed and retained the experience of many years.—*Dublin Quarterly Journal*.

Full of important matter, conveyed in a ready and agreeable manner.—*St. Louis Med. and Surg. Jour.*

There is an off-hand fervor, a glow, and a warm-heartedness infecting the effort of Dr. Meigs, which is entirely captivating, and which absolutely hurries the reader through from beginning to end. Besides, the book teems with solid instruction, and it shows the very highest evidence of ability, viz., the clearness with which the information is presented. We know of no better test of one's understanding a subject than the evidence of the power of lucidly explaining it. The most elementary, as well as the obscurest subjects, under the pencil of Prof. Meigs, are isolated and made to stand out in such bold relief, as to produce distinct impressions

MEIGS (CHARLES D.), M. D.,

Lately Professor of Obstetrics, &amp;c., in Jefferson Medical College, Philadelphia.

**ON THE NATURE, SIGNS, AND TREATMENT OF CHILDREN'S**

FEVER. In a Series of Letters addressed to the Students of his Class. In one handsome octavo volume, extra cloth, of 365 pages. \$2 50.

The instructive and interesting author of this work, whose previous labors have placed his countrymen under deep and abiding obligations, again challenges their admiration in the fresh and vigorous, attractive and racy pages before us. It is a de-

lectable book. \* \* \* This treatise upon childhood fevers will have an extensive sale, being so timed, as it deserves, to find a place in the library of every practitioner who accords to it in the *Nashville Journal of Medicine and Surgery*.

BY THE SAME AUTHOR; WITH COLORED PLATES.

**A TREATISE ON ACUTE AND CHRONIC DISEASES OF THE NECK OF THE UTERUS.** With numerous plates, drawn and colored from nature in the highest style of art. In one handsome octavo volume, extra cloth. \$4 50.

MACLISE (JOSEPH), SURGEON.

**SURGICAL ANATOMY.** Forming one volume, very large imperial quarto.

With sixty-eight large and splendid Plates, drawn in the best style and beautifully colored. Containing one hundred and ninety Figures, many of them the size of life. Together with copious and explanatory letter-press. Strongly and handsomely bound in extra cloth, being one of the cheapest and best executed Surgical works as yet issued in this country. \$11 00.

Gentlemen preparing for service in the field or hospital will find these plates of the highest practical value, either for consultation in emergencies or to refresh their recollection of the dissecting room.

\* \* \* The size of this work prevents its transmission through the post-office as a whole, but those who desire to have copies forwarded by mail, can receive them in five parts, done up in stout wrappers. Price \$9 00.

One of the greatest artistic triumphs of the age in Surgical Anatomy.—*British American Medical Journal*.

No practitioner whose means will admit should fail to possess it.—*Randolph's Abstract*.

Too much cannot be said in its praise; indeed, we have no language to do it justice.—*Ohio Medical and Surgical Journal*.

The most accurately engraved and beautifully colored plates we have ever seen in an American book—one of the best and cheapest surgical works ever published.—*Buffalo Medical Journal*.

It is very rare that so elegantly printed, so well illustrated, and so useful a work, is offered at so moderate a price.—*Charleston Medical Journal*.

Its plates can boast a superiority which places them almost beyond the reach of competition.—*Medical Examiner*.

Country practitioners will find these plates of immense value.—*N. Y. Medical Gazette*.

A work which has no parallel in point of accuracy and cheapness in the English language.—*N. Y. Journal of Medicine*.

We are extremely gratified to announce to the profession the completion of this truly magnificent work, which, as a whole, certainly stands unrivalled, both for accuracy of drawing, beauty of coloring, and all the requisite explanations of the subject in hand.—*The New Orleans Medical and Surgical Journal*.

This is by far the ablest work on Surgical Anatomy that has come under our observation. We know of no other work that would justify a student, in any degree, for neglect of actual dissection. In those sudden emergencies that so often arise, and which require the instantaneous command of minute anatomical knowledge, a work of this kind keeps the details of the dissecting-room perpetually fresh in the memory.—*The Western Journal of Medicine and Surgery*.

MILLER (HENRY), M. D.,

Professor of Obstetrics and Diseases of Women and Children in the University of Louisville.

**PRINCIPLES AND PRACTICE OF OBSTETRICS, &c.; including the Treat-**

ment of Chronic Inflammation of the Cervix and Body of the Uterus considered as a frequent cause of Abortion. With about one hundred illustrations on wood. In one very handsome octavo volume, of over 600 pages, extra cloth. \$3 75.

We congratulate the author that the task is done. We congratulate him that he has given to the medical public a work which will secure for him a high and permanent position among the standard authorities on the principles and practice of obstetrics. Congratulations are not less due to the medical profession of this country, on the acquisition of a treatise embodying the results of the studies, reflections, and experience of Prof. Miller.—*Buffalo Medical Journal*.

In fact, this volume must take its place among the standard systematic treatises on obstetrics; a posi-

tion to which its merits justly entitle it.—*The Cincinnati Lancet and Observer*.

A most respectable and valuable addition to our home medical literature, and one reflecting credit alike on the author and the institution to which he is attached. The student will find in this work a most useful guide to his studies; the country practitioner, rusty in his reading, can obtain from its pages a fair résumé of the modern literature of the science; and we hope to see this American production generally consulted by the profession.—*Va. Med. Journal*.

MACKENZIE (W.), M. D.,

Surgeon Oculist in Scotland in ordinary to Her Majesty, &amp;c. &amp;c.

**A PRACTICAL TREATISE ON DISEASES AND INJURIES OF THE**

EYE. To which is prefixed an Anatomical Introduction explanatory of a Horizontal Section of the Human Eyeball, by THOMAS WHARTON JONES, F. R. S. From the Fourth Revised and Enlarged London Edition. With Notes and Additions by ADDINELL HAWSON, M. D., Surgeon to Wills Hospital, &c. &c. In one very large and handsome octavo volume, extra cloth, with plates and numerous wood-cuts. \$5 25.

The treatise of Dr. Mackenzie indisputably holds the first place, and forms, in respect of learning and

We consider it the duty of every one who has the love of his profession and the welfare of his patient

MILLER (JAMES), F. R. S. E.,

Professor of Surgery in the University of Edinburgh, &amp;c.

**PRINCIPLES OF SURGERY.** Fourth American, from the third and revised Edinburgh edition. In one large and very beautiful volume, extra cloth, of 700 pages, with two hundred and forty illustrations on wood. \$3 75.

BY THE SAME AUTHOR.

**THE PRACTICE OF SURGERY.** Fourth American from the last Edinburgh edition. Revised by the American editor. Illustrated by three hundred and sixty-four engravings on wood. In one large octavo volume, extra cloth, of nearly 700 pages. \$3 75.

No eulogium of ours could add to the popularity of Miller's Surgery. Its reputation in this country is unsurpassed by that of any other work, and, when taken in connection with the author's *Principles of Surgery*, constitutes a whole, without reference to which no conscientious surgeon would be willing to practice his art.—*Southern Med. and Surg. Journal*.

It is seldom that two volumes have ever made so profound an impression in so short a time as the "Principles" and the "Practice" of Surgery by Dr. Miller—or so richly merited the reputation they have acquired. The author is an eminently sensible, practical, and well-informed man, who knows exactly what he is talking about and exactly how to talk it.—*Kentucky Medical Recorder*.

By the almost unanimous voice of the profession,

his works, both on the principles and practice of surgery have been assigned the highest rank. If we were limited to but one work on surgery, that one should be Miller's, as we regard it as superior to all others.—*St. Louis Med. and Surg. Journal*.

The author has in this and his "Principles," presented to the profession one of the most complete and reliable systems of Surgery extant. His style of writing is original, impressive, and engaging, energetic, concise, and lucid. Few have the faculty of condensing so much in small space, and at the same time so persistently holding the attention. Whether as a text-book for students or a book of reference for practitioners, it cannot be too strongly recommended.—*Southern Journal of Med. and Physical Sciences*.

MORLAND (W. W.), M. D.,

Fellow of the Massachusetts Medical Society, &amp;c.

**DISEASES OF THE URINARY ORGANS; a Compendium of their Diagnosis, Pathology, and Treatment.** With illustrations. In one large and handsome octavo volume, of about 600 pages, extra cloth. \$3 50.

Taken as a whole, we can recommend Dr. Morland's compendium as a very desirable addition to the library of every medical or surgical practitioner.—*Erit. and For. Med.-Chir. Rev.*, April, 1869.

Every medical practitioner whose attention has been to any extent attracted towards the class of diseases to which this treatise relates, must have often and sorely experienced the want of some full, yet concise recent compendium to which he could

refer. This desideratum has been supplied by Dr. Morland, and it has been ably done. He has placed before us a full, judicious, and reliable digest. Each subject is treated with sufficient minuteness, yet in a succinct, narrative style, such as to render the work one of great interest, and one which will prove in the highest degree useful to the general practitioner.—*N. Y. Journ. of Medicine*.

BY THE SAME AUTHOR.

**THE MORBID EFFECTS OF THE RETENTION IN THE BLOOD OF THE ELEMENTS OF THE URINARY SECRETION.** Being the Dissertation to which the Fiske Fund Prize was awarded, July 11, 1861. In one small octavo volume, 83 pages, extra cloth. 75 cents.

MONTGOMERY (W. F.), M. D., M. R. I. A., &amp;c.,

Professor of Midwifery in the King and Queen's College of Physicians in Ireland, &amp;c.

**AN EXPOSITION OF THE SIGNS AND SYMPTOMS OF PREGNANCY,**

With some other Papers on Subjects connected with Midwifery. From the second and enlarged English edition. With two exquisite colored plates, and numerous wood-cuts. In one very handsome octavo volume, extra cloth, of nearly 600 pages. \$3 75.

A book unusually rich in practical suggestions.—*Am. Journal Med. Sciences*, Jan. 1867.

These several subjects so interesting in themselves, and so important, every one of them, to the most delicate and precious of social relations, controlling often the honor and domestic peace of a family, the legitimacy of offspring, or the life of its parent, are all treated with an elegance of diction, fulness of illustrations, acuteness and justice of reasoning, unparalleled in obstetrics, and unsurpassed in medicine. The reader's interest can never flag, so

fresh, and vigorous, and classical is our author's style; and one forgets, in the renewed charm of every page, that it, and every line, and every word has been weighed and reweighed through years of preparation; that this is of all others the book of Obstetric Law, on each of its several topics; on all points connected with pregnancy, to be everywhere received as a manual of special jurisprudence, at once announcing fact, affording argument, establishing precedent, and governing alike the jurymen, advocate, and judge.—*N. A. Med.-Chir. Review*.

MOHR (FRANCIS), PH. D., AND REDWOOD (THEOPHILUS).

**PRACTICAL PHARMACY.** Comprising the Arrangements, Apparatus, and Manipulations of the Pharmaceutical Shop and Laboratory. Edited, with extensive Additions, by Prof. WILLIAM PROCTER, of the Philadelphia College of Pharmacy. In one handsomely printed octavo volume, extra cloth, of 570 pages, with over 500 engravings on wood. \$2 75

**MAYNE'S DISPENSARY AND THERAPEUTICAL REMEMBRANCER.** With every Practical Formula contained in the three British Pharmacopœias. Edited, with the addition of the *Formule of the U. S. Pharmacopœia* by R. E.

**MALGAIGNE'S OPERATIVE SURGERY,** based on Normal and Pathological Anatomy. Translated from the French by FREDERICK BRITTON, A. B., M. D. With numerous illustrations on wood. In one handsome octavo volume, extra cloth, of

NEILL (JOHN), M. D.,

Surgeon to the Pennsylvania Hospital, &amp;c.; and

FRANCIS GURNEY SMITH, M. D.,

Professor of Institutes of Medicine in the Pennsylvania Medical College.

**AN ANALYTICAL COMPENDIUM OF THE VARIOUS BRANCHES OF MEDICAL SCIENCE;** for the Use and Examination of Students. A new edition, revised and improved. In one very large and handsomely printed royal 12mo. volume, of about one thousand pages, with 374 wood-cuts, extra cloth, \$3 25. Strongly bound in leather, with raised bands. \$3 50.

This work is again presented as eminently worthy of the favor with which it has hitherto been received. As a book for daily reference by the student requiring a guide to his more elaborate text-books, as a manual for preceptors desiring to stimulate their students by frequent and accurate examination, or as a source from which the practitioners of older date may easily and cheaply acquire a knowledge of the changes and improvement in professional science, its reputation is permanently established.

The best work of the kind with which we are acquainted.—*Med. Examiner.*

Having made free use of this volume in our examinations of pupils, we can speak from experience in recommending it as an admirable compend for students, and as especially useful to preceptors who examine their pupils. It will save the teacher much labor by enabling him readily to recall all of the points upon which his pupils should be examined. A work of this sort should be in the hands of every one who takes pupils into his office with a view of examining them; and this is unquestionably the best of its class.—*Transylvania Med. Journal.*

In the rapid course of lectures, where work for

the students is heavy, and review necessary for an examination, a compend is not only valuable, but it is almost a *sine qua non*. The one before us is, in most of the divisions, the most unexceptionable of all books of the kind that we know of. The newest and soundest doctrines and the latest improvements and discoveries are explicitly, though concisely, laid before the student. There is a class to whom we very sincerely commend this cheap book as worth its weight in silver—that class is the graduates in medicine of more than ten years' standing, who have not studied medicine since. They will perhaps find out from it that the science is not exactly now what it was when they left it off.—*The Statescope.*

NELIGAN (J. MOORE), M. D., M. R. I. A., &amp;c.

**ATLAS OF CUTANEOUS DISEASES.** In one beautiful quarto volume, extra cloth, with splendid colored plates, presenting nearly one hundred elaborate representations of disease. \$4 75.

This beautiful volume is intended as a complete and accurate representation of all the varieties of Diseases of the Skin. While it can be consulted in conjunction with any work on Practice, it has especial reference to the author's "Treatise on Diseases of the Skin," so favorably received by the profession some years since. The publishers feel justified in saying that few more beautifully executed plates have ever been presented to the profession of this country.

Neligan's Atlas of Cutaneous Diseases supplies a long existing desideratum much felt by the largest class of our profession. It presents, in quarto size, 16 plates, each containing from 3 to 6 figures, and forming in all a total of 90 distinct representations of the different species of skin affections, grouped together in genera or families. The illustrations have been taken from nature, and have been copied with such fidelity that they present a striking picture of life; in which the reduced scale aptly serves to

give, at a coup d'œil, the remarkable peculiarities of each individual variety. And while thus the disease is rendered more definable, there is yet no loss of proportion incurred by the necessary concentration. Each figure is highly colored, and so truthful has the artist been that the most fastidious observer could not justly take exception to the correctness of the execution of the pictures under his scrutiny.—*Montreal Med. Chronicle.*

BY THE SAME AUTHOR.

**A PRACTICAL TREATISE ON DISEASES OF THE SKIN.** Fourth American edition. In one neat royal 12mo. volume, extra cloth, of 334 pages. \$1 25.

**OWEN ON THE DIFFERENT FORMS OF THE SKELETON, AND OF THE TEETH.**

One vol. royal 18mo., extra cloth with numerous illustrations. \$1 25

PIRRIE (WILLIAM), F. R. S. E.,

Professor of Surgery in the University of Aberdeen.

**THE PRINCIPLES AND PRACTICE OF SURGERY.** Edited by JOHN NEILL, M. D., Professor of Surgery in the Penna. Medical College, Surgeon to the Pennsylvania Hospital, &c. In one very handsome 8vo. volume, extra cloth, of 780 pages, with 316 illustrations. \$3 75.

We know of no other surgical work of a reasonable size, wherein there is so much theory and practice, or where subjects are more soundly or clearly taught.—*The Statescope.*

Prof. Pirrie, in the work before us, has elaborately

discussed the principles of surgery, and a safe and effectual practice predicated upon them. Perhaps no work upon this subject heretofore issued is so full upon the science of the art of surgery.—*Nashville Journal of Medicine and Surgery.*

PARKER (LANGSTON),

Surgeon to the Queen's Hospital, Birmingham.

**THE MODERN TREATMENT OF SYPHILITIC DISEASES, BOTH PRIMARY AND SECONDARY;** comprising the Treatment of Constitutional and Confirmed Syphilis, by a safe and successful method. With numerous Cases, Formulæ, and Clinical Observations. From the Third and entirely rewritten London edition. In one neat octavo volume.

**PARRISH (EDWARD),**

Lecturer on Practical Pharmacy and Materia Medica in the Pennsylvania Academy of Medicine, &c.

**A TREATISE ON PHARMACY.** Designed as a Text-book for the Student, and as a Guide for the Physician and Pharmacist. With many Formulas and Prescriptions. Third edition, greatly improved. In one handsome octavo volume, of 850 pages, with several hundred Illustrations, extra cloth. \$5 00. (*Just Ready.*)

Though for some time out of print, the appearance of a new edition of this work has been delayed for the purpose of embodying in it the results of the new U. S. Pharmacopœia. The publication of this latter has enabled the author to complete his revision in the most thorough manner. Those who have been waiting for the work may therefore rely on obtaining a volume completely on a level with the most advanced condition of pharmaceutical science.

The favor with which the work has thus far been received shows that the author was not mistaken in his estimate of the want of a treatise which should serve as a practical text-book for all engaged in preparing and dispensing medicines. Such a guide was indispensable not only to the educated pharmacist, but also to that large class of practitioners throughout the country who are obliged to compound their own prescriptions, and who during their collegiate course have no opportunity of obtaining a practical familiarity with the necessary processes and manipulations. The rapid exhaustion of two large editions is evidence that the author has succeeded in thoroughly carrying out his object. Since the appearance of the last edition, much has been done to perfect the science; the new Pharmacopœia has introduced many changes to which the profession must conform; and the author has labored assiduously to embody in his work all that physicians and pharmacists can ask for in such a volume. The new matter alone will thus be found worth more than the very moderate cost of the work to those who have been using the previous editions.

All that we can say of it is that to the practicing physician, and especially the country physician, who is generally his own apothecary, there is hardly any book that might not better be dispensed with. It is at the same time a dispensary and a pharmacy.—*Louisville Review.*

A careful examination of this work enables us to peak of it in the highest terms, as being the best treatise on practical pharmacy with which we are acquainted, and an invaluable *volume-mecum*, not only to the apothecary and to those practitioners who are accustomed to prepare their own medicines, but to every medical man and medical student.—*Boston Med. and Surg. Journal.*

This is altogether one of the most useful books we have seen. It is just what we have long felt to be needed by apothecaries, students, and practitioners of medicine, most of whom in this country have to put up their own prescriptions. It bears, upon every page, the impress of practical knowledge, conveyed in a plain common sense manner, and adapted to the comprehension of all who may read it.—*Southern Med. and Surg. Journal.*

That Edward Parrish, in writing a book upon *Medical Pharmacy* some few years ago—one eminently original and unique—did the medical and pharmaceutical professions a great and valuable service, no one, we think, who has had access to its pages will deny; doubly welcome, then, is this new

edition, containing the added results of his recent and rich experience as an observer, teacher, and practical operator in the pharmaceutical laboratory. The excellent plan of the first is more thoroughly, —*Pennsylvan Med. Journal*, Jan. 1860.

Of course, all apothecaries who have not already a copy of the first edition will procure one of this; it is, therefore, to physicians residing in the country and in small towns, who cannot avail themselves of the skill of an educated pharmacist, that we would especially commend this work. In it they will find all that they desire to know, and should know, but very little of which they do really know in reference to this important collateral branch of their profession; for it is a well established fact, that, in the education of physicians, while the science of medicine is generally well taught, very little attention is paid to the art of preparing them for use, and we know not how this defect can be so well remedied as by procuring and consulting Dr. Parrish's excellent work.—*St. Louis Med. Journal*, Jan. 1860.

We know of no work on the subject which would be more indispensable to the physician or student desiring information on the subject of which it treats. With Griffith's "Medical Formulary" and this, the practicing physician would be supplied with nearly or quite all the most useful information on the subject.—*Charleston Med. Jour. and Review*, Jan. 1860.

**PEASLEE (E. R.), M. D.,**

Professor of Physiology and General Pathology in the New York Medical College.

**HUMAN HISTOLOGY**, in its relations to **Anatomy, Physiology, and Pathology**; for the use of Medical Students. With four hundred and thirty-four illustrations. In one handsome octavo volume, extra cloth, of over 600 pages. \$3 75.

It embraces a library upon the topics discussed within itself, and is just what the teacher and learner need. We have not only the whole subject of Histology, interesting in itself, ably and fully discussed, but what is of infinitely greater interest to the student, because of greater practical value, are its relations to Anatomy, Physiology, and Pathology, which are here full and satisfactorily set forth.—*Nashville Journ. of Med. and Surgery.*

We would recommend it as containing a summary of all that is known of the important subjects which it treats; of all that is in the great works of Simon and Lehmann, and the organic chemists in general. Master this one volume, and you know all that is known of the great fundamental principles of medicine, and we have no hesitation in saying that it is an honor to the American medical profession.—*St. Louis Med. and Surg. Journal.*

**ROKITANSKY (CARL), M. D.,**

Curator of the Imperial Pathological Museum, and Professor at the University of Vienna, &c.

**A MANUAL OF PATHOLOGICAL ANATOMY.** Four volumes, octavo, bound in two, extra cloth, of about 1200 pages. KING, C. H. MOORE, and G. E. DAY. \$5 50.

The profession is so well acquainted with the reputation of Rokitansky's work to need our assurance that this is one of the most profound, thorough, and valuable books ever issued from the medical press. It is *swi generis*, and has no standard of comparison. It is only necessary to announce that it is issued in a form as cheap as is compatible with its size and preservation, and its sale follows as a matter of course. No library can be called com-

plete without these volumes, would be feeble and hopeless. The effort of the distinguished author to concentrate in a small space his great fund of knowledge, has so charged his text with valuable truths, that any attempt of a reviewer to epitomize is at once paralyzed, and must end in a failure.—*Western Lancet.*

As this is the highest source of knowledge upon the important subject of which it treats, no real student can afford to be without it. The American

**RIGBY (EDWARD), M. D.,**

Senior Physician to the General Lying-in Hospital, &c.

**A SYSTEM OF MIDWIFERY.** With Notes and Additional Illustrations. Second American Edition. One volume octavo, extra cloth, 422 pages. \$2 50.

BY THE SAME AUTHOR.

**ON THE CONSTITUTIONAL TREATMENT OF FEMALE DISEASES.** In one neat royal 12mo. volume, extra cloth, of about 250 pages. \$1 00.

**RAMSBOTHAM (FRANCIS H.), M. D.**

**THE PRINCIPLES AND PRACTICE OF OBSTETRIC MEDICINE AND SURGERY,** in reference to the Process of Parturition. A new and enlarged edition, thoroughly revised by the Author. With Additions by W. V. KEATINGE, M. D., Professor of Obstetrics, &c., the Jefferson Medical College, Philadelphia. In one large and handsome imperial octavo volume of 650 pages, strongly bound in leather, with raised bands; with sixty-four beautiful Plates, and numerous Wood-cuts in the text, containing in all nearly 200 large and beautiful figures. \$6 00

*From Prof. Hodge, of the University of Pa.*

To the American public, it is most valuable, from its intrinsic undoubted excellence, and as being the best authorized exponent of British Midwifery. Its circulation will, I trust, be extensive throughout our country.

It is unnecessary to say anything in regard to the utility of this work. It is already appreciated in our country for the value of the matter, the clearness of its style, and the fulness of its illustrations. To the physician's library it is indispensable, while to the student as a text-book, from which to extract the material for laying the foundation of an education on obstetrical science, it has no superior.—*Ohio Med. and Surg. Journal.*

The publishers have secured its success by the

truly elegant style in which they have brought out, excelling themselves in its production, especially in its plates. It is dedicated to Prof. May and has the emphatic endorsement of Prof. Hodge as the best exponent of British Midwifery. We know of no text-book which deserves in all respects to be more highly recommended to students, and we could wish to see it in the hands of every practitioner for they will find it invaluable for reference.—*Ms Gazette.*

**RICORD (P.), M. D.**

**A TREATISE ON THE VENEREAL DISEASE.** By JOHN HUNTER, F.R.S. With copious Additions, by PH. RICORD, M. D. Translated and Edited, with Notes, by FREDERICK J. BUMSTEAD, M. D., Lecturer on Venereal at the College of Physicians and Surgeons, New York. Second edition, revised, containing a *résumé* of RICORD'S RECENT LECTURES ON CHANCER. In one handsome octavo volume, extra cloth, of 550 pages, with eight plates. \$3 25.

Every one will recognize the attractiveness and value which this work derives from thus presenting the opinions of these two masters side by side. But, it must be admitted, what has made the fortune of the book, is the fact that it contains the "most complete embodiment of the veritable doctrines of the Hôpital du Midi," which has ever been made pub-

lic. In conclusion we can say that this is unquestionably the best treatise on syphilis with which we are acquainted, and, as we do not often employ a phrase, we may be excused for expressing the hope that it may find a place in the library of every physician.—*Virginia Med. and Surg. Journal.*

BY THE SAME AUTHOR.

**RICORD'S LETTERS ON SYPHILIS.** Translated by W. P. LATTIMORE, M.D. In one neat octavo volume, of 270 pages, extra cloth. \$2 00.

**BOYLE'S MATERIA MEDICA AND THERAPEUTICS;** including the Preparations of the Pharmacopœias of London, Edinburgh, Dublin, and of the United States. With many new medicines. Edited by JOSEPH CARSON, M. D. With ninety-eight illustrations. In one large octavo volume, extra cloth, of about 700 pages. \$3 00.

**SMITH (HENRY H.), M. D., AND HORNER (WILLIAM E.), M. D.**  
**AN ANATOMICAL ATLAS,** illustrative of the Structure of the Human Body. In one volume, large imperial octavo, extra cloth, with about six hundred and fifty beautiful figures. \$3 50.

The plan of this Atlas, which renders it so peculiarly convenient for the student, and its superb artistic execution, have been already pointed out. We must congratulate the student upon the completion of this Atlas, as it is the most convenient work

of the kind that has yet appeared; and we must add the very beautiful manner in which it is "got up" is so creditable to the country as to be flattering to our national pride.—*American Medical Journal.*

**SHARPEY (WILLIAM), M. D., JONES QUAIN, M. D., AND RICHARD QUAIN, F. R. S., &c.**

**HUMAN ANATOMY.** Revised, with Notes and Additions, by JOSEPH LEE, M. D., Professor of Anatomy in the University of Pennsylvania. Complete in two large octavo volumes, extra cloth, of about thirteen hundred pages. With over 500 illustrations. \$6 00.

**BOLLY ON THE HUMAN BRAIN;** its Structure, Physiology, and Diseases. From the Second and much enlarged London edition. In one octavo volume, extra cloth, of 500 pages, with 120 woodcuts. \$2 00.

handsome octavo volume, extra cloth, of over 400 pages, with about one hundred woodcuts. \$3 50  
**SIMON'S GENERAL PATHOLOGY,** as conducive to the Establishment of Rational Principles for the prevention and Cure of Disease. In 2

## STILLE (ALFRED), M. D.

**THERAPEUTICS AND MATERIA MEDICA; a Systematic Treatise on the Action and Uses of Medicinal Agents, including their Description and History.** In two large and handsome octavo volumes, of 1780 pages, leather. \$9 00.

This work is designed especially for the student and practitioner of medicine, and treats the various articles of the Materia Medica from the point of view of the bedside, and not of the shop or of the lecture-room. While thus endeavoring to give all practical information likely to be useful with respect to the employment of special remedies in special affections, and the results to be anticipated from their administration, a copious Index of Diseases and their Remedies renders the work eminently fitted for reference by showing at a glance the different means which have been employed, and enabling the practitioner to extend his resources in difficult cases with all that the experience of the profession has suggested.

Rarely, indeed, have we had submitted to us a work on medicine so ponderous in its dimensions as that now before us, and yet so fascinating in its contents. It is, therefore, with a peculiar gratification that we recognize in Dr. Stille the possession of many of those more distinguished qualifications which entitle him to approbation, and which satisfy him in coming before his medical brethren as an instructor. A comprehensive knowledge, aided by a sound and penetrating judgment, joined to a love of progress—which a discriminating spirit of inquiry has tempered so as to accept nothing new because it is new, and abandon nothing old because it is old, but which estimates either according to its relations to a just logic and experience—manifests itself everywhere, and gives to the guidance of the author all the assurance of safety which the difficulties of his subject can allow. In conclusion, we earnestly advise our readers to ascertain for themselves, by a study of Dr. Stille's volumes, the great value and interest of the stores of knowledge they present. We have pleasure in referring rather to the ample treasury of undoubted truths, the real and assured conquest of medicine, accumulated by Dr. Stille in his pages; and commend the sum of his labors to the attention of our readers, as alike honorable to our science, and creditable to the zeal, the ardor, and the judgment of him who has garnered his whole so carefully.—*Edinburgh Med. Journal*.

We knew that the task would be conscientiously performed, and that few, if any, among the distinguished medical teachers in this country are better qualified than he to prepare a systematic treatise in therapeutics in accordance with the present requirements of medical science. Our preliminary examination of the work has satisfied us that we were not mistaken in our anticipations.—*New Orleans Medical News*, March, 1860.

The most recent authority is the one last mentioned, Stille. His great work on "Materia Medica and Therapeutics," published last year, in two octavo volumes, of some sixteen hundred pages, while it embodies the results of the labor of others up to the time of publication, is enriched with a great amount of original observation and research. We would draw attention, by the way, to the very convenient mode in which the Index is arranged in this work. There is first an "Index of Remedies;" next an "Index of Diseases and their Remedies." Such an arrangement of the Indices, in our opinion, greatly enhances the practical value of books of this kind. In tedious, obstinate cases of disease, where we have to try one remedy after another until our stock is pretty nearly exhausted, and we are almost driven to our wit's end, such an index as the second of the two just mentioned, is precisely what we want.—*London Med. Times and Gazette*, April, 1861.

We think this work will do much to obviate the reluctance to a thorough investigation of this branch of scientific study, for in the wide range of medical literature treasured in the English tongue, we shall hardly find a work written in a style more clear and simple, conveying forcibly the facts taught, and yet free from turgidity and redundancy. There is a fascination in its pages that will insure to it a wide popularity and attentive perusal, and a degree of usefulness not often attained through the influence of a single work. The author has much enhanced the practical utility of his book by passing briefly over the physical, botanical, and commercial history of medicines, and directing attention chiefly to their physiological action, and their application for the amelioration or cure of disease. He ignores hypothesis and theory which are so alluring to many medical writers, and so liable to lead them astray, and confines himself to such facts as have been tried in the crucible of experience.—*Chicago Medical Journal*.

## SIMPSON (J. Y.), M. D.,

Professor of Midwifery, &c., in the University of Edinburgh, &c.

**CLINICAL LECTURES ON THE DISEASES OF WOMEN.** With numerous illustrations. In one handsome octavo volume, of over 500 pages, extra cloth, \$3 00. (*Now Ready*, 1863.)

This valuable work having passed through the columns of "THE MEDICAL NEWS AND LIBRARY" in 1860, 1861, and 1862, is now completed, and may be had separate in one handsome volume.

The principal topics embraced in the Lectures are Vesico-Vaginal Fistula, Cancer of the Uterus, Treatment of Carcinoma by Caustics, Dysmenorrhoea, Amenorrhoea, Closures, Contractions, &c., of the Vagina, Vulvitis, Causes of Death after Surgical Operations, Surgical Fever, Phlegmasia dolens, Coccyodynia, Pelvic Cellulitis, Pelvic Hematoma, Spurious Pregnancy, Ovarian Dropsy, Variotomy, Cranioclast, Diseases of the Fallopian Tubes, Puerperal Mania, Sub-Involution and Super-Involution of the Uterus, &c. &c.

As a series of monographs on these important topics—many of which receive little attention in the ordinary text-books—elucidated with the extensive experience and readiness of resource for which Professor Simpson is so distinguished, there are few practitioners who will not find in its pages matter of the utmost importance in the treatment of obscure and difficult cases.

## SALTER (H. H.), M. D.

**ASTHMA; its Pathology, Causes, Consequences, and Treatment.** In one vol. 8vo., extra cloth. (*Just Ready*.) \$1 75.

The portion of Dr. Salter's work which is devoted to treatment, is of great practical interest and value. He treats successively of the influence of the different drugs which have been found useful in relieving the asthmatic paroxysm, so far as he has had an opportunity of testing their merits, and it would be necessary to follow him step by step in his remarks, not only on the medicinal, but also on the dietetic and hygienic treatment of the disease, in order to

convey a just notion of the practical value of this part of his work. This our space forbids, and this we shall little regret, if, by our silence, we should induce our readers to possess themselves of the book itself; a book which, without doubt, deserves to be ranked among the most valuable of recent contributions to the medical literature of this country.—*Ranking's Abstract*, Jan., 1861.

SARGENT (F. W.), M. D.

**ON BANDAGING AND OTHER OPERATIONS OF MINOR SURGERY**

New edition, with an additional chapter on Military Surgery. One handsome royal 12mo. v. of nearly 400 pages, with 184 wood cuts. Extra cloth, \$1 50. (*Now Ready.*)

The value of this work as a handy and convenient manual for surgeons engaged in active duty, induced the publishers to render it more complete for those purposes by the addition of a chapter on gun-shot wounds and other matters peculiar to military surgery. In its present form, therefore, with no increase in price, it will be found a very cheap and convenient *vade-mecum* for consultation and reference in the daily exigencies of military as well as civil practice.

We consider that no better book could be placed in the hands of an hospital dresser, or the young surgeon, whose education in this respect has not been perfected. We most cordially commend this volume as one which the medical student should most closely study, to perfect himself in these minor surgical operations in which neatness and dexterity are so much required, and on which a great portion of his reputation as a future surgeon must evidently rest. And to the surgeon in practice it must prove itself a valuable volume, as instructive on many points which he may have forgotten.—*British American Journal*, May, 1868.

The instruction given upon the subject of *bandaging*, is alone of great value, and while the author modestly proposes to instruct the students of medicine, and the younger physicians, we will say that experienced physicians will obtain many exceedingly valuable suggestions by its perusal. It will be found one of the most satisfactory manuals for reference in the field, or hospital yet published; thoroughly adapted to the wants of Military surgeons and at the same time equally useful for ready and convenient reference by surgeons everywhere. *Buffalo Med. and Surg. Journal*, June, 1862.

SMITH (W. TYLER), M. D.,

Physician Accoucheur to St. Mary's Hospital, &amp;c.

**ON PARTURITION, AND THE PRINCIPLES AND PRACTICE OF OBSTETRICS.** In one royal 12mo. volume, extra cloth, of 400 pages. \$1 25.

BY THE SAME AUTHOR.

**A PRACTICAL TREATISE ON THE PATHOLOGY AND TREATMENT OF LEUCORRHOEA.** With numerous illustrations. In one very handsome octavo volume extra cloth, of about 250 pages. \$1 50.

TANNER (T. H.), M. D.,

Physician to the Hospital for Women, &amp;c.

**A MANUAL OF CLINICAL MEDICINE AND PHYSICAL DIAGNOSIS**

To which is added The Code of Ethics of the American Medical Association. Second American Edition. In one neat volume, small 12mo., extra cloth, 87½ cents.

TAYLOR (ALFRED S.), M. D., F. R. S.,

Lecturer on Medical Jurisprudence and Chemistry in Guy's Hospital.

**MEDICAL JURISPRUDENCE.** Fifth American, from the seventh improved and enlarged London edition. With Notes and References to American Decisions, by EDWARD HARTSHORNE, M. D. In one large 8vo. volume, extra cloth, of over 700 pages. \$3 25.

This standard work having had the advantage of two revisions at the hands of the author since the appearance of the last American edition, will be found thoroughly revised and brought up completely to the present state of the science. As a work of authority, it must therefore maintain its position, both as a text-book for the student, and a compendious treatise to which the practitioner can at all times refer in cases of doubt or difficulty.

No work upon the subject can be put into the hands of students either of law or medicine which will engage them more closely or profitably; and none could be offered to the busy practitioner of either calling, for the purpose of casual or hasty reference, that would be more likely to afford the aid desired. We therefore recommend it as the best and safest manual for daily use.—*American Journal of Medical Sciences*.

It is not excess of praise to say that the volume before us is the very best treatise extant on Medical Jurisprudence. In saying this, we do not wish to be understood as detracting from the merits of the excellent works of Beck, Ryan, Traill, Guy, and others; but in interest and value we think it must be conceded that Taylor is superior to anything that has preceded it.—*N. W. Medical and Surg. Journal*.

It is at once comprehensive and eminently practical, and by universal consent stands at the head of

American and British legal medicine. It should be in the possession of every physician, as the subject is one of great and increasing importance to the public as well as to the profession.—*St. Louis Med. and Surg. Journal*.

This work of Dr. Taylor's is generally acknowledged to be one of the ablest extant on the subject of medical jurisprudence. It is certainly one of the most attractive books that we have met with; supplying so much both to interest and instruct, that we do not hesitate to affirm that after having once commenced its perusal, few could be prevailed upon to desist before completing it. In the last London edition, all the newly observed and accurately recorded facts have been inserted, including much that is recent of Chemical, Microscopical, and Pathological research, besides papers on numerous subjects never before published.—*Charleston Med. Journal and Review*.

BY THE SAME AUTHOR.

**ON POISONS, IN RELATION TO MEDICAL JURISPRUDENCE AND MEDICINE.** Second American, from a second and revised London edition. In one large octavo volume, of 755 pages, extra cloth. \$3 50.

Mr. Taylor's position as the leading medical jurist of England, has conferred on him extraordinary advantages in acquiring experience on these subjects, nearly all cases of moment being referred to him for examination, as an expert whose testimony is generally accepted as fact. The results of his labors, therefore, as gathered together in this volume, carefully weighed and sifted, and presented in the clear and intelligible style for which he is noted, may be received as an acknowledged authority, and as a guide to be followed with implicit confidence.

BY THE SAME AUTHOR AND WM. BRANDE.

**CHEMISTRY.** In one volume 8vo. See "BRANDE." p. 6.



**TODD (ROBERT BENTLEY), M. D., F. R. S.,**

Professor of Physiology in King's College, London; and

**WILLIAM BOWMAN, F. R. S.,**

Demonstrator of Anatomy in King's College, London.

**THE PHYSIOLOGICAL ANATOMY AND PHYSIOLOGY OF MAN.** With about three hundred large and beautiful illustrations on wood. Complete in one large octavo volume, of 960 pages, extra cloth. Price \$4 50.

It is more concise than Carpenter's Principles, and more modern than the accessible edition of Müller's Elements; its details are brief, but sufficient; its descriptions vivid; its illustrations exact and copious; and its language terse and perspicuous.—*Charleston Med. Journal.*

A magnificent contribution to British medicine, and the American physician who shall fail to peruse it, will have failed to read one of the most instructive books of the nineteenth century.—*N. O. Med. and Surg. Journal.*

**TODD (R. B.) M. D., F. R. S., &c.**

**CLINICAL LECTURES ON CERTAIN DISEASES OF THE URINARY ORGANS AND ON DROPSIES.** In one octavo volume, 284 pages, extra cloth. \$1 50.

BY THE SAME AUTHOR.

**CLINICAL LECTURES ON CERTAIN ACUTE DISEASES.** In one neat octavo volume, of 320 pages, extra cloth. \$1 75.

**TOYNBEE (JOSEPH), F. R. S.,**

Aural Surgeon to, and Lecturer on Surgery at, St. Mary's Hospital.

**A PRACTICAL TREATISE ON DISEASES OF THE EAR;** their Diagnosis, Pathology, and Treatment. Illustrated with one hundred engravings on wood. In one very handsome octavo volume, extra cloth, \$3 00.

The work is a model of its kind, and every page and paragraph of it are worthy of the most thorough study. Considered all in all—as an original work, well written, philosophically elaborated, and happily illustrated with cases and drawings—it is by far the ablest monograph that has ever appeared on the anatomy and diseases of the ear, and one of the most valuable contributions to the art and science of surgery in the nineteenth century.—*N. Amer. Medical-Chirurg. Review*, Sept. 1860.

We are speaking within the limits of modest acknowledgment, and with a sincere and unbiassed judgment, when we affirm that as a treatise on Aural

Surgery, it is without a rival in our language or any other.—*Charleston Med. Journ. and Rev.*, Sept. 1860.

The work of Mr. Toynbee is undoubtedly, upon the whole, the most valuable production of the kind in any language. The author has long been known by his numerous monographs upon subjects connected with diseases of the ear, and is now regarded as the highest authority on most points in his department of science. Mr. Toynbee's work, as we have already said, is undoubtedly the most reliable guide for the study of the diseases of the ear in any language, and should be in the library of every physician.—*Chicago Med. Journal*, July, 1860.

**WILLIAMS (C. J. B.), M. D., F. R. S.,**

Professor of Clinical Medicine in University College, London, &c.

**PRINCIPLES OF MEDICINE.** An Elementary View of the Causes, Nature, Treatment, Diagnosis, and Prognosis of Disease; with brief remarks on Hygienics, or the preservation of health. A new American, from the third and revised London edition. In one octavo volume, extra cloth, of about 500 pages. \$2 50.

**WHAT TO OBSERVE**

**AT THE BEDSIDE AND AFTER DEATH, IN MEDICAL CASES.**

Published under the authority of the London Society for Medical Observation. A new American, from the second and revised London edition. In one very handsome volume, royal 12mo., extra cloth. \$1 00.

To the observer who prefers accuracy to blunders and precision to carelessness, this little book is invaluable.—*N. H. Journal of Medicine.*

One of the finest aids to a young practitioner we have ever seen.—*Peninsular Journal of Medicine.*

**WALSHE (W. H.), M. D.,**

Professor of the Principles and Practice of Medicine in University College, London, &c.

**A PRACTICAL TREATISE ON DISEASES OF THE LUNGS;** including the Principles of Physical Diagnosis. Third American, from the third revised and much enlarged London edition. In one vol. octavo, of 468 pages, extra cloth. \$2 25.

The present edition has been carefully revised and much enlarged, and may be said in the main to be rewritten. Descriptions of several diseases, previously omitted, are now introduced; an effort has been made to bring the description of anatomical characters to the level of the wants of the practical physician; and the diagnosis and prognosis of each complaint are more completely considered. The sections on TREATMENT and the Appendix have, especially, been largely extended.—*Author's Preface.*

BY THE SAME AUTHOR.

**A PRACTICAL TREATISE ON THE DISEASES OF THE HEART AND GREAT VESSELS,** including the Principles of Physical Diagnosis. Third American, from the third revised and much enlarged London edition. In one handsome octavo volume of 420 pages, extra cloth. \$2 25.

The present edition has been carefully revised; much new matter has been added, and the entire work in a measure remodelled. Numerous facts and discussions, more or less completely novel, will be found in the description of the principles of physical diagnosis; but the chief additions have been made in the practical portions of the book. Several affections, of which little or no account

**New and much enlarged edition.**

**WATSON (THOMAS), M. D., &c.,**  
Late Physician to the Middlesex Hospital, &c.

**LECTURES ON THE PRINCIPLES AND PRACTICE OF PHYSIC.**

Delivered at King's College, London. A new American, from the last revised and enlarged English edition, with Additions, by D. FRANCIS CONNIE, M. D., author of "A Practical Treatise on the Diseases of Children," &c. With one hundred and eighty-five illustrations on wood. In one very large and handsome volume, imperial octavo, of over 1200 closely printed pages in small type; extra cloth, \$4 75; strongly bound in leather, with raised bands, \$5 50.

That the high reputation of this work might be fully maintained, the author has subjected it to a thorough revision; every portion has been examined with the aid of the most recent researches in pathology, and the results of modern investigations in both theoretical and practical subjects have been carefully weighed and embodied throughout its pages. The watchful scrutiny of the editor has likewise introduced whatever possesses immediate importance to the American physicians in relation to diseases incident to our climate which are little known in England, as well as those points in which experience here has led to different modes of practice; and he has also added largely to the series of illustrations, believing that in this manner valuable assistance may be conveyed to the student in elucidating the text. The work will, therefore, be found thoroughly on a level with the most advanced state of medical science on both sides of the Atlantic.

The additions which the work has received are shown by the fact that notwithstanding an enlargement in the size of the page, more than two hundred additional pages have been necessary to accommodate the two large volumes of the London edition (which sells at ten dollars), within the compass of a single volume, and in its present form it contains the matter of at least three ordinary octavos. Believing it to be a work which should lie on the table of every physician, and be in the hands of every student, the publishers have put it at a price within the reach of all, making it one of the cheapest books as yet presented to the American profession, while at the same time the beauty of its mechanical execution renders it an exceedingly attractive volume.

The fourth edition now appears, so carefully revised, as to add considerably to the value of a book already acknowledged, wherever the English language is read, to be beyond all comparison the best systematic work on the Principles and Practice of Physic in the whole range of medical literature. Every lecture contains proof of the extreme anxiety of the author to keep pace with the advancing knowledge of the day. One scarcely knows whether to admire most the pure, simple, forcible English—the vast amount of useful practical information condensed into the Lectures—or the manly, kind-hearted, unassuming character of the lecturer shining through his work.—*London Med. Times.*

Thus these admirable volumes come before the profession in their fourth edition, abounding in those distinguished attributes of moderation, judgment, erudite cultivation, clearness, and eloquence, with which they were from the first invested, but yet richer than before in the results of more prolonged observation, and in the able appreciation of the latest advances in pathology and medicine by one of the most profound medical thinkers of the day.—*London Lancet.*

The lecturer's skill, his wisdom, his learning, are equalled by the ease of his graceful diction, his eloquence, and the far higher qualities of candor, of courtesy, of modesty, and of generous appreciation of merit in others.—*N. A. Med-Chir Review.*

Watson's unrivalled, perhaps unapproachable work on Practice—the copious additions made to which (the fourth edition) have given it all the novelty and much of the interest of a new book.—*Charleston Med. Journal.*

Lecturers, practitioners, and students of medicine will equally hail the reappearance of the work of Dr. Watson in the form of a new—a fourth—edition. We merely do justice to our own feelings, and, we are sure, of the whole profession, if we thank him for having, in the trouble and turmoil of a large practice, made leisure to supply the hiatus caused by the exhaustion of the third edition. For Dr. Watson has not merely caused the lectures to be reprinted, but scattered through the whole work we find additions or alterations which prove that the author has in every way sought to bring up his teaching to the level of the most recent acquisitions in science.—*Brit. and For. Medico-Chir. Review.*

**New and much enlarged edition.**

**WILSON (ERASMUS), F. R. S.**

**A SYSTEM OF HUMAN ANATOMY, General and Special.** A new and revised American, from the last and enlarged English Edition. Edited by W. H. GOBBRECHT, M. D., Professor of Anatomy in the Pennsylvania Medical College, &c. Illustrated with three hundred and ninety-seven engravings on wood. In one large and exquisitely printed octavo volume, of over 600 large pages; extra cloth, \$3 50.

The publishers trust that the well earned reputation so long enjoyed by this work will be more than maintained by the present edition. Besides a very thorough revision by the author, it has been most carefully examined by the editor, and the efforts of both have been directed to introducing everything which increased experience in its use has suggested as desirable to render it a complete text-book for those seeking to obtain or to renew an acquaintance with Human Anatomy. The amount of additions which it has thus received may be estimated from the fact that the present edition contains over one-fourth more matter than the last, rendering a smaller type and an enlarged page requisite to keep the volume within a convenient size. The editor has exercised the utmost caution to obtain entire accuracy in the text, and has largely increased the number of illustrations, of which there are about one hundred and fifty more in this edition than in the last, thus bringing distinctly before the eye of the student everything of interest or importance.

It may be recommended to the student as no less distinguished by its accuracy and clearness of description than by its typographical elegance. The wood-cuts are exquisite.—*Brit. and For. Medical Review.*

An elegant edition of one of the most useful and accurate systems of anatomical science which has been issued from the press. The illustrations are fully beautiful. In its style the work is extremely clear and intelligible. No one can possibly take his volume without being struck with the great

beauty of its mechanical execution, and the clearness of the descriptions which it contains is equally evident. Let students, by all means examine the claims of this work on their notice, before they purchase a text-book of the vitally important science which this volume so fully and easily unfolds.—*Lancet.*

We regard it as the best system now extant for students.—*Western Lancet.*

It therefore receives our highest commendation.—*Southern Med. and Surg. Journal.*

WILSON (ERASMUS), F. R. S.

**ON DISEASES OF THE SKIN.** Fifth American, from the Fifth enlarged London edition. In one handsome octavo volume, of nearly 700 large pages, with illustrations on wood, extra cloth. \$3 25. (*Now Ready*, May, 1863.)

This classical work, which for twenty years has occupied the position of the leading authority in the English language on its important subject, has just received a thorough revision at the hands of the author, and is now presented as embodying the results of the latest investigations and experience on all matters connected with diseases of the skin. The increase in the size of the work shows the industry of the author, and his determination that it shall maintain the position which it has acquired as thoroughly on a level with the most advanced condition of medical science.

A few notices of the last edition are appended.

The writings of Wilson, upon diseases of the skin, are by far the most scientific and practical that have ever been presented to the medical world on this subject. The present edition is a great improvement on all its predecessors. To dwell upon all the great merits and high claims of the work before us, *seriatim*, would indeed be an agreeable service; it would be a mental homage which we could freely offer, but we should thus occupy an undue amount of space in this *Journal*. We will, however, look at some of the more salient points with which it abounds, and which make it incomparably superior to all other treatises on the subject of dermatology. No more speculative views are allowed a place in this volume, which, without a doubt, will, for a very long period, be acknowledged as the chief standard work on dermatology. The principles of an enlightened and rational therapeutics are introduced on every appropriate occasion.—*Am. Jour. Med. Science*.

When the first edition of this work appeared, about fourteen years ago, Mr. Erasmus Wilson had already given some years to the study of Diseases of the Skin, and he then expressed his intention of devoting his future life to the elucidation of this branch of Medical Science. In the present edition Mr. Wilson presents us with the results of his matured experience, and we have now before us not merely a reprint of his former publications, but an entirely new and rewritten volume. Thus, the whole history of the diseases affecting the skin, whether they originate in that structure or are the mere manifestations of derangement of internal organs, is brought under notice, and the book includes a mass of information which is spread over a great part of the domain of Medical and Surgical Pathology. We can safely recommend it to the profession as the best work on the subject now in existence in the English language.—*London Med. Times and Gazette*.

No matter what other treatises may be in the library of the medical attendant, he needs the clear and suggestive counsels of Wilson, who is thoroughly posted up on all subjects connected with cutaneous pathology. We have, it is very true, other valuable works on the maladies that invade the skin; but, compared with the volume under consideration, they are certainly to be regarded as inferior lights in guiding the judgment of the medical man.—*Boston Med. and Surg. Journal*, Oct. 1867.

The author adopts a simple and entertaining style. He strives to clear away the complications of his subject, and has thus produced a book filled with a vast amount of information, in a form so agreeable as to make it pleasant reading, even to the uninitiated. More especially does it deserve our praise because of its beautiful and complete atlas, which the American publishers have successfully imitated from the original plates. We pronounce them by far the best imitations of nature yet published in our country. With the text-book and atlas at hand, the diagnosis is rendered easy and accurate, and the practitioner feels himself safe in his treatment. We will add that this work, although it must have been very expensive to the publishers, is not high priced. There is no reason, then, to prevent every physician from obtaining a work of such importance, and one which will save him both labor and perplexity.—*Va. Med. Journal*.

As a practical guide to the classification, diagnosis, and treatment of the diseases of the skin, the book is complete. We know nothing, considered in this aspect, better in our language; it is a safe authority on all the ordinary matters which, in this range of diseases, engage the practitioner's attention, and possesses the high quality—unknown, we believe, to every older manual, of being on a level with science's high-water mark; a sound book of practice.—*London Med. Times*.

ALSO, NOW READY,

**A SERIES OF PLATES ILLUSTRATING WILSON ON DISEASES OF THE SKIN;** consisting of twenty beautifully executed plates, of which thirteen are exquisitely colored, presenting the Normal Anatomy and Pathology of the Skin, and containing accurate representations of about one hundred varieties of disease, most of them the size of nature. Price in cloth. \$4 50.

In beauty of drawing and accuracy and finish of coloring these plates will be found equal to anything of the kind as yet issued in this country. The value of the new edition is enhanced by an additional colored plate.

The plates by which this edition is accompanied leave nothing to be desired, so far as excellence of delineation and perfect accuracy of illustration are concerned.—*Medical-Chirurgical Review*.

Of these plates it is impossible to speak too highly. The representations of the various forms of cutaneous disease are singularly accurate, and the coloring exceeds almost anything we have met with.—*British and Foreign Medical Review*.

Also, the TEXT and PLATES done up in one handsome volume, extra cloth, price \$7 50.

BY THE SAME AUTHOR.

**THE DISSECTOR'S MANUAL;** or, Practical and Surgical Anatomy. Third American, from the last revised and enlarged English edition. Modified and rearranged, by WILLIAM HUNT, M. D., Demonstrator of Anatomy in the University of Pennsylvania. In one large and handsome royal 12mo. volume, extra cloth, of 582 pages, with 154 illustrations. \$2 00.

BY THE SAME AUTHOR.

**ON CONSTITUTIONAL AND HEREDITARY SYPHILIS, AND ON SYPHILITIC ERUPTIONS.** In one small octavo volume, extra cloth, beautifully printed, with four exquisite colored plates, presenting more than thirty varieties of syphilitic eruptions. \$2 25.

BY THE SAME AUTHOR.

**HEALTHY SKIN; A Popular Treatise on the Skin and Hair, their Preservation and Management.** Second American, from the fourth London edition. One neat volume, with 100 colored plates, and 200 pages, with numerous illustrations. \$1 00.

WINSLOW (FORBES), M. D., D. C. L., &amp;c.

**ON OBSCURE DISEASES OF THE BRAIN AND DISORDERS OF THE MIND;** their incipient Symptoms, Pathology, Diagnosis, Treatment, and Prophylaxis. In one handsome octavo volume, of nearly 600 pages, extra cloth. \$3 00.

We close this brief and necessarily very imperfect notice of Dr. Winslow's great and classical work, by expressing our conviction that it is long since so important and beautifully written a volume has issued from the British medical press.—*Dublin Med. Press*, July 25, 1860.

We honestly believe this to be the best book of the season.—*Ranking's Abstract*, July, 1860.

The latter portion of Dr. Winslow's work is exclusively devoted to the consideration of Cerebral

Pathology. It completely exhausts the subject, in the same manner as the previous seventeen chapters relating to morbid psychical phenomena left nothing unnoticed in reference to the mental symptoms preliminary of cerebral disease. It is impossible to overrate the benefits likely to result from a general perusal of Dr. Winslow's valuable and deeply interesting work.—*London Lancet*, June 23, 1860.

It contains an immense mass of information.—*Brit. and For. Med.-Chir. Review*, Oct. 1860.

WEST (CHARLES), M. D.,

Accoucheur to and Lecturer on Midwifery at St. Bartholomew's Hospital, Physician to the Hospital for Sick Children, &c.

**LECTURES ON THE DISEASES OF WOMEN.** Second American, from the second London edition. In one handsome octavo volume, extra cloth, of about 500 pages; price \$2 50.

\* \* Gentlemen who received the first portion, as issued in the "Medical News and Library," can now complete their copies by procuring Part II, being page 309 to end, with Index, Title matter, &c., 8vo., cloth, price \$1.

We must now conclude this hastily written sketch with the confident assurance to our readers that the work will well repay perusal. The conscientious, painstaking, practical physician is apparent on every page.—*N. Y. Journal of Medicine*.

We know of no treatise of the kind so complete and yet so compact.—*Chicago Med. Jour.*

A fairer, more honest, more earnest, and more reliable investigator of the many diseases of women and children is not to be found in any country.—*Southern Med. and Surg. Journal*.

We have to say of it, briefly and decidedly, that it is the best work on the subject in any language; and that it stamps Dr. West as the *facile princeps* of British obstetric authors.—*Edinb. Med. Journ.*

We gladly recommend his Lectures as in the highest degree instructive to all who are interested in obstetric practice.—*London Lancet*.

Happy in his simplicity of manner, and moderate in his expression of opinion, the author is a sound reasoner and a good practitioner, and his book is worthy of the handsome garb in which it has appeared.—*Virginia Med. Journal*.

We must take leave of Dr. West's very useful work, with our commendation of the clearness of its style, and the industry and sobriety of judgment of which it gives evidence.—*London Med. Times*.

Sound judgment and good sense pervade every chapter of the book. From its perusal we have derived unmixed satisfaction.—*Dublin Quart. Journ.*

BY THE SAME AUTHOR.

**LECTURES ON THE DISEASES OF INFANCY AND CHILDHOOD.**

Third American, from the fourth enlarged and improved London edition. In one handsome octavo volume, extra cloth, of about six hundred and fifty pages. \$4 75.

The three former editions of the work now before us have placed the author in the foremost rank of those physicians who have devoted special attention to the diseases of early life. We attempt no analysis of this edition, but may refer the reader to some of the chapters to which the largest additions have been made—those on Diphtheria, Disorders of the Mind, and Idiocy, for instance—as a proof that the work is really a new edition; not a mere reprint. In its present shape it will be found of the greatest possible service in the every-day practice of nine-tenths of the profession.—*Med. Times and Gazette*, London, Dec. 10, 1859.

All things considered, this book of Dr. West is by far the best treatise in our language upon such modifications of morbid action and disease as are witnessed when we have to deal with infancy and childhood. It is true that it confines itself to such disorders as come within the province of the physician, and even with respect to these it is unequal as regards minuteness of consideration, and some

diseases it omits to notice altogether. But those who know anything of the present condition of pediatrics will readily admit that it would be next to impossible to effect more, or effect it better, than the accoucheur of St. Bartholomew's has done in a single volume. The lecture (XVI.) upon Disorders of the Mind in children is an admirable specimen of the value of the later information conveyed in the Lectures of Dr. Charles West.—*London Lancet*, Oct. 21, 1859.

Since the appearance of the first edition, about eleven years ago, the experience of the author has doubled; so that, whereas the lectures at first were founded on six hundred observations, and one hundred and eighty dissections made among nearly fourteen thousand children, they now embody the results of nine hundred observations, and two hundred and eighty-eight post-mortem examinations made among nearly thirty thousand children, who, during the past twenty years, have been under his care.—*British Med. Journal*, Oct. 1, 1869.

BY THE SAME AUTHOR.

**AN ENQUIRY INTO THE PATHOLOGICAL IMPORTANCE OF ULCERATION OF THE OS UTERI.** In one neat octavo volume, extra cloth. \$1 00.















DEC 1989

WESLEY

